

# INSIDE DOPE

Learn to live and laugh—  
Thus delay your epitaph

By **GEORGE F. TAUBENECK**

Story of the Week  
Last Words  
Verse of the Week  
Gags of the Week  
Pregnant Thoughts  
Letter of the Week  
Out of Our Mailbag

## Story of the Week

Huntington Small, a retired refrigeration wholesaler who is "living the life of Riley" (when Riley isn't there) in California passes on this chuckler:

Ev King of his Thermal Co., once worked in the credit department of the Crane Co. Ev was handed a bunch of past due accounts, and ordered to go out and collect them.

Like most young men, he was full of confidence. And, knowing the problems of a credit department, Ev felt that he could impress on credit-dodgers the errors of their ways. However:

His confidence waned after a number of unsuccessful calls. A plumber from a small town in Minnesota gave his aplomb the final blow.

This plumber's account was many months past due. Payments had been irregular and for odd amounts. King explained the difficulties his employers had in doing business on such a basis.

"Young feller" interjected Mr. Past Due, "I've run my store my way for 30 years. You see that box? Well, I drop all my bills in it, and when I get a check in payment I pull out as many bills as it will pay."

"If you don't like my system I won't even drop your bills in the box."

## Last Words

Don't ever ration love. We'd have a good world if everyone was loved as much as possible from the time he was born. No one can hate anybody if he's been loved enough. —**GERTRUDE SCHWEITZER**, *Woman's Home Companion*.

Education should reduce the number of people who go through life never having lived. —**NEA Journal**.

## Verse of the Week

Some wicked men are rich; some good men are poor;  
We will not change our virtue for their store;  
Virtue's a thing that none can take away;  
But money changes owners all the day.

—**Solon**, 638-559 B.C.

## Gags of the Week

Daylight saving time is just about all you can save nowadays!

A venerable Quaker left a diary in 27 volumes. This diary was the record of a blameless, almost holy life.

Frequently in the margin would appear the odd phrase, "T & F." Pages recording truly saintly days would have this notation time and time again. Finally the old man's heirs discovered the meaning of the cryptic phrase. It was: "Tempted and Fell." —**Ladies Home Journal**.

**Memory Test:** Try to recall the things that worried you so much last Monday.

Never run after a bus or a woman. There'll be another along (Concluded on Page 8, Col. 1)

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## Copeland Producing Special Open-Type Units for Frigidaire

DETROIT—Frigidaire Division of General Motors Corp. has arranged for conventional belt-drive, open-type condensing units to be supplied to its sales organization by Copeland Refrigeration Corp., the NEWS learned last week.

Under an agreement reached by the two companies, Copeland will provide Frigidaire with these units for distribution through Frigidaire distributors and factory-owned branches in this country, Canada, Mexico, and more than 20 foreign countries whose distribution is handled through General Motors Overseas Operations.

Frigidaire took this action, it is understood, because it was difficult to justify the tooling program and setting up of production facilities for producing the relatively small volume of such units now used. Since Copeland was already making open-type compressors, Frigidaire decided it would be more economical to use the former's facilities to meet the demand for open units.

Frigidaire emphasizes it has no intention of using these units in place of its "XD Meter-Miser" (Concluded on Back Page, Col. 3)

## Schaefer Announces New Frozen Food Cabinet Line

MINNEAPOLIS—A completely new line of cabinets fashioned for merchandising frozen foods has just been announced by Schaefer, Inc., manufacturer of Schaefer ice cream cabinets and "Pak-A-Way" home freezers.

Attractive first cost, low operating cost, extra capacity combined with small floor area, and portability are some of the main features of the line, as described by H. N. Nafstad, sales manager of Schaefer's frozen food cabinet division.

Eight models range in capacity from 12 to 22 cu. ft. The smallest cabinet, model FO-12, 12 cu. ft., has full open top and holds 437 standard packages. List price is \$582 complete with plastic superstructure.

Model FGF-124, also 12 cu. ft., has full open top with clear vision (Concluded on Back Page, Col. 4)

## American Standard Using Consumer List Prices On Plumbing Items

PITTSBURGH—Plumbing and heating supplies made by the American Radiator & Standard Sanitary Corp. here are now being priced on consumer list price basis, instead of the net-to-the-contractor basis that was formerly used, and which has generally prevailed in the field.

In explaining the move, an executive of the firm stated:

"With more and more contractors developing retail stores, and with expanding use of modern merchandising methods throughout the industry, suggested con-

## Arkansas Utility Charged With Unfair Competition In Cooling Unit Sales

LITTLE ROCK, Ark.—Unfair competition by the Arkansas-Louisiana Gas Co. in its handling of air conditioning and refrigeration appliances and installation was charged in a petition filed May 3 with the Arkansas State Public Service Commission by the Refrigeration and Air Conditioning Div. of the Associated Mechanical Contractors of Arkansas.

The petition asked the commission to order the company to "cease and desist" from its non-public utility operations.

First of its type to be presented to the Arkansas regulator agency, which took no immediate action on it, the petition alleged that in 1952 and 1953 the gas company subsidized its non-utility operations to the tune of \$70,000 annually and was using its assured profits as a protected monopoly "in (Concluded on Page 4, Col. 1)

## First Evis Hearing Brings Controversy

LOS ANGELES, May 12—Opening of the hearings on the Federal Trade Commission complaint charging the maker of the Evis water conditioner with "false and misleading" advertising was marked by some sharp controversy over testimony presented by FTC witnesses.

Lawyers for the government agency placed on the witness stand John C. Merrell, Jr., an engineer, and two other employees of the Los Angeles Department of Water and Power. These witnesses testified on the outcome of tests made to determine the accuracy of certain (Concluded on Page 31, Col. 1)

## Moerick, Topp Named A-P Vice Presidents

MILWAUKEE—Appointment of Mel Moerick as vice president, sales, and A. L. Topp as vice president, engineering, was announced recently by R. W. Johnson, president, A-P Controls Corp.

In 1937 Moerick joined A-P, then known as Automatic Products Co., as a sales correspondent. From 1948 to 1952 he was refrigeration sales manager, and became general sales manager of the company in 1953.

He is a graduate of Beloit col- (Concluded on Page 31, Col. 2)

## Mathieson Chemical and Olin Industries May Merge

NEW YORK CITY—The board of directors of Mathieson Chemical Corp. and Olin Industries, Inc. have voted to submit to their stockholders at meetings on June 29, a proposal to merge the two companies. The new company would be known as the Olin Mathieson Chemical Corp.

Mathieson is a major producer of chemicals, drugs, and pharmaceuticals. Olin is a large producer of metals and fabricated parts, ex- (Concluded on Page 4, Col. 3)

## Revco Introduces Built-In Freezer, Refrigerator Duet

DEERFIELD, Mich.—A built-in food freezer and refrigerator duet, "designed to inspire new ideas in kitchen design and remodeling" will be introduced at a special press preview in Chicago this week by Revco, Inc.

The combination consists of an 8-cu. ft. refrigerator section, to be built flush into the wall, and a 6-cu. ft. freezer section, also to be built into the wall. Installed in a wall, one over the other, the units will have an over-all height of about 70 in.

Outside doors and frames will be finished in a base coat so that the purchaser can finish them in whatever color he desires. Other finishes on outside doors and frames will be stainless steel or white enamel.

Door frames are constructed with special hinge slots on both sides. By simply tapping out the hinge pins, turning the door up- (Concluded on Page 31, Col. 2)

## New Distribution, Sales Heads Named For Crosley, Bendix

CINCINNATI—Promotion of William A. MacDonough to the newly-created post of general manager of distribution and merchandising for Crosley and Bendix home appliances was announced recently by Parker H. Ericksen, Avco Mfg. Corp. vice president and general manager of appliances for Crosley and Bendix.

MacDonough then announced the appointment of John K. Knighton, former vice president in charge of sales for Servel, Inc., as general sales manager of appliances.

J. L. Armstrong, named general sales manager of laundry equipment shortly after the consolidation of the Crosley appliance and Bendix laundry divisions of Avco last year, continues in that post, it was pointed out.

(Concluded on Page 31, Col. 4)

## FTC Resets First Hearing On Dairies' Unfair Practices For Jacksonville May 17

WASHINGTON, D. C.—The first of the hearings on the Federal Trade Commission complaints charging some major ice cream producers with unfair practices in the sale or servicing of retailers' equipment, postponed from May 4, will be held May 17 in Jacksonville, Fla.

This hearing is on the complaint involving the Foremost Ice Cream Co., and will be held in the post office and court house building in Jacksonville.

Dates for other hearings, which are "firm" as of this time are: June 9, New York City (The Borden Co.); June 18, (National Dairy Products Corp.); June 28, Los Angeles (Arden Farms, and Carnation Milk Co.).

## Self-Serve Meat Dept. Big Topic For Super-Marts

Study Report Scheduled at Cleveland May 23-26; 423 Exhibitors Listed

CLEVELAND—First report on a comprehensive study of customer buying habits and attitudes toward self-service meat will be featured in the opening session of the Super Market Institute's 17th annual convention to be held at Public Auditorium here May 23 to 26.

Claimed to be the largest exhibit of food store equipment, this year's show is a sell-out with 423 manufacturers exhibiting. Several refrigeration firms are included.

The show opens at 12:45 p.m. Sunday, May 23 and remains open until 6 p.m. The show will be open afternoons the remaining three days.

The self-service meat study will be presented Monday morning by Henry J. Eavey of Henry J. Eavey, Inc., Richmond, Ind., supermarket, (Concluded on Page 4, Col. 4)

## Airtron Marketing Home, Commercial Air Conditioning

HOLLAND, Ohio—Entering the market with a competitively priced line of residential and commercial air conditioners, the Airtron Corp. here has announced the appointment of Ken Tyler as president and sales manager.

Tyler, formerly vice president and sales manager of Davison Associates, refrigeration and air conditioning distributor in nearby Toledo, has been active in the industry there for 17 years.

Directors of the recently formed company are Harold Schemenauer, Irving Higgins, and James Higgins, all of the Schemenauer Mfg. Co. here.

Airtron is offering for national distribution 2 and 3-hp. water-cooled air conditioners, 2 and 3-hp. (Concluded on Back Page, Col. 1)

## 2 Regional Mgrs. Direct Sales for Remington

AUBURN, N. Y.—A new marketing lineup to supervise domestic sales of Remington room air conditioners has been announced here by Herbert L. Laube, president, Remington Corp.

Field activities of Remington district and regional managers will be under the direction of an eastern and a western field manager, rather than a general sales manager.

This new setup was established (Concluded on Page 31, Col. 5)

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You can be sure of the  
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WORKS: READING, PA.

## General Register Corp. Air Conditioners Bring To Supply Cooling Field \$197,000 Back to Muntz

CEDAR GROVE, N. J.—Formation of the General Register Corp. was announced recently by B. P. Harding, president.

The plant has begun manufacture of a complete line of adjustable type registers, grilles, and accessories for central plant cooling and ventilating systems, he said. Distribution will be made through a national organization of representatives to contractors, distributors, and installers.

In addition to its accumulated general purpose machinery from its 22-year-old predecessor manufacturing company, the expanded firm is investing more than \$100,000 in high production facilities and tools, Harding said. These include a 10-stand Yoder mill to fabricate rolled shapes at the rate of 100 ft. per minute.

Principals in the company besides Harding are R. D. Anderson, engineering vice president, and P. W. McCloskey, manufacturing vice president.

The 14 categories of the line, with a wide range of sizes, are principally fabricated of hollow rolled metal sections assembled in welded rectangular frames. Also included are stamped plain lattice and ventilating grilles.

Feature of all types of grilles is General's "Silentite" volume damper of the opposed-action valve type.

CHICAGO—Release of 2,228 Muntz air conditioners from warehouses in Detroit and New Orleans brought \$197,000 back to the company, James Overton Brooks, attorney for Muntz TV, Inc. trustees, reported recently. The units were released to settle a \$226,734 lien on them.

Muntz TV is currently undergoing a reorganization at the request of creditors. C. Wylie Allen and Floyd G. Dana were recently confirmed as trustees by Federal Judge Win G. Knoch, the report indicated.

## Mid-West REWA Summer Meeting Set for June 4-6

TULSA, Okla.—The Mid-West Refrigeration Equipment Wholesalers Association will hold its summer meeting June 4-6 at the Elms hotel, Excelsior Springs, Mo., it was announced here recently by R. W. Palmer, chairman of Region 7.

Business meetings for members will be held June 4 and the morning of June 5. A golf tournament, with prizes for the worst and best golfers, is scheduled for the afternoon of June 5 for all who care to participate.

All manufacturers, sales agents, and representatives, as well as all other members of REWA, are invited.

## Refrigerator Price Cut \$25 In Ward's Summer Catalog

CHICAGO—In its mid-summer sales book, Montgomery Ward & Co. lists a 9-cu. ft. refrigerator with built-in automatic defroster at \$279.95, \$25 less than the price given for the unit in the 1954 spring and summer catalog.

Also included in the Ward flyer are these offers of free items with the purchase of certain appliances:

An ironing board, ironing pad, and cover with the purchase of a wringer-type washer listed at \$99.95 cash; a wax applicator with can of wax, a cellulose sponge mop, and an oil dust mop with the purchase of a cannister cleaner at \$64.95; a buttonholer, extra buttonhole templates, and 60 spools of assorted, colored thread with the purchase of a free-arm sewing machine listed at \$99.95.

## Airtemp Names Winners Of Air Conditioned Cars

DAYTON—Capping a company-wide sales drive that ended April 22, seven of Chrysler Airtemp's sales managers have been notified they will "weather" the 1954 summer in new, fully-equipped air conditioned Dodge sedans.

The awards were presented by J. F. Knoff, vice president in charge of sales, to those managers whose regions topped Chrysler Airtemp's records on percentage-of-sales-to-quota ratio.

Best regional sales showings were turned in by Atlanta, under W. E. Edwards; Kansas City, F. G. Hill; Philadelphia, Harry Young; St. Louis, R. E. Davis; Detroit, P. J. Dalton; Dallas G. S. Cobb; and Chicago, under D. E. Drake.

## Fischer Plans Open House At New Office-Warehouse

SAGINAW, Mich.—J. Geo. Fischer & Sons, Inc. here, wholesale distributor of home appliances, refrigeration equipment, and electrical supplies, will hold open house May 25-26 to celebrate the formal opening of its modern new office and warehouse building at 2115 Rust Ave.

There will be special displays of merchandise and equipment, with factory representatives on hand to help answer questions, and refreshments, prizes, and souvenirs, according to George H. Fischer, president.

The new plant will be open for inspection Tuesday, May 25, from 10 a.m. to 9 p.m. Buffet lunches will be served at noon and at dinner time. There will be a buffet lunch at noon only on May 26.

## Packaging Called Today's Trend In Air Conditioning By Donnelly of Servel

HOUSTON, Texas—Greater use of self-contained, factory-packaged products for all types of air conditioning applications was called "today's most apparent trend in air conditioning" in a speech here by James F. Donnelly, vice president in charge of sales of Servel, Inc.

Donnelly spoke at a meeting co-hosted by United Gas Corp. and Houston Natural Gas Corp. It was attended by 400 members of the American Institute of Architects and the Producers Council—manufacturers and distributors of building material and equipment.

"Pre-packaged units reduce costs to the customer," Donnelly told his listeners, "by minimizing installation labor and expense."

"Furthermore," he added, "a more dependable product may be offered with system components engineered to work well with each other and with assembly taking place under controlled factory conditions."

Donnelly then showed the group new Servel gas air conditioning products exemplifying the company's efforts in the direction of packaged merchandise. He explained that they were compact, completely pre-assembled at the factory and shipped in one crate, required no field labor for assembly, and needed only to be set in place and connected to the utilities and usual ductwork to be ready to go.

## Wisconsin Appliance Retailers To Meet In Milwaukee May 25

MILWAUKEE—Preliminary arrangements for Wisconsin's second annual state meeting of appliance and television retailers are now in process, according to announcement by George Pazik, Pazik Appliances, who is serving as general chairman of arrangements.

The date has been set as May 25, and the Hotel Pfister in this city will be headquarters for the meetings, the chairman further announced.

Program details will be released just as soon as they are completely set up. Forrest Nielsen, Wisconsin Electric Power & Light, is serving as publicity chairman, and the financial planning is under the supervision of Ray Carpentier, Carpentier's.



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**"SPACE SAVER"**

Thermostatic Expansion Valves...

The easiest-to-work-with valves  
on the market!

- Capacities— $\frac{1}{8}$  to 2 tons, F-12—Standard Valve
- 1 to 3 tons, F-12—External Equalizer

- "C" and "Z" cross charges available
- Compact, rugged construction
- Mount in any position
- Easily cleaned cartridge needle and seat assembly
- Accessible and easy superheat adjustment
- Large inlet strainer, easily cleaned
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- External equalizer type easily converted to internal equalizer right on the job.

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AUTOMATIC CONTROLS for REFRIGERATION

AIR CONDITIONING • DOMESTIC HEATING • AVIATION • TRANSPORTATION • HOME APPLIANCES • INDUSTRIAL USES

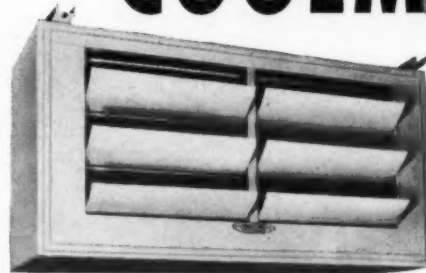
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**COOLMASTER**

The Superior  
Product  
Cooler



5 SIZES  
10,000 to 60,000  
BTU's

For EXTRA LARGE CAPACITIES

Ceiling mounted, you save valuable floor  
and storage space. Easier to install and  
service, too. Built-in Heat Exchanger.

WRITE FOR CATALOG R-230

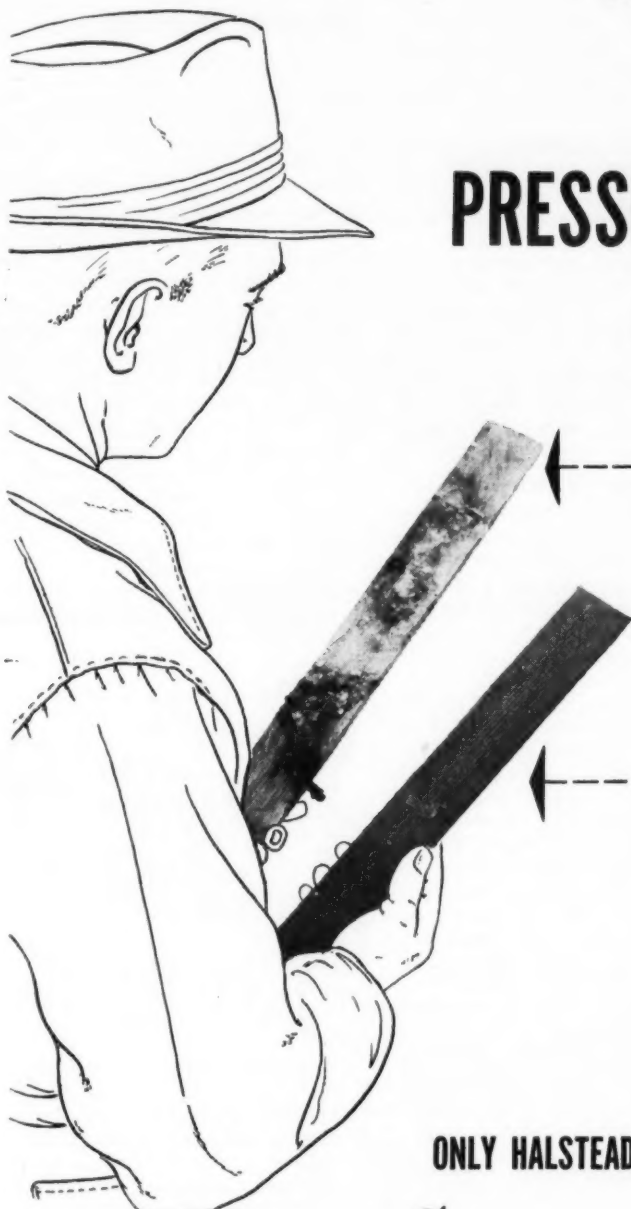
**KRAMER TRENTON CO. • Trenton 5, N.J.**



# LOOK WHAT CAN HAPPEN TO THE WOOD IN COOLING TOWERS



## PRESSURE CREOSOTING ADDS YEARS OF LIFE TO HALSTEAD & MITCHELL COOLING TOWERS



### UNTREATED ROUGH-CUT WOOD

is subject to immediate attack by fungus and marine parasites, leading to quick rotting. It is also subject to chemical deterioration from acids in water. Rough-cut wood is the best material for the wetted deck of a cooling tower because it "wets" more effectively than any other material . . . but unless it is protected, its life is apt to be short, indeed. All wood used in Halstead & Mitchell Cooling Towers is protected wood.

### PRESSURE-CREOSOTED WOOD

adds years and years of life to your cooling tower. Why? Because creosote contains 162 elements toxic to fungus growth and parasites. It also makes wood more resistant to chemical attack. It is the most permanent and positive preservative used to treat timber, *tested by over 100 years of use*. Koppers Pressure-Creosoting provides deep penetration of the wood . . . not just surface protection.

The protection afforded means Halstead & Mitchell alone offers the 20-Year Guarantee on the Wetted Deck Surface against rotting due to fungus growth!

ONLY HALSTEAD & MITCHELL OFFERS THE  
**20-Year Guarantee!**

on the wetted deck surface against rotting by fungus attack

### NO EXTRA COST—CHECK PRICES TODAY

The extras in Halstead & Mitchell Cooling Towers are extras in service and life . . . not in price. Price-wise H & M Residential Cooling Towers have thrown open huge segments of the home and small building market to air-conditioning. Halstead &

Mitchell Industrial Cooling Towers are known nationally for initial and operating economies. And all Halstead & Mitchell Cooling Towers offer the exclusive 20-Year Guarantee against rotting by fungus attack.

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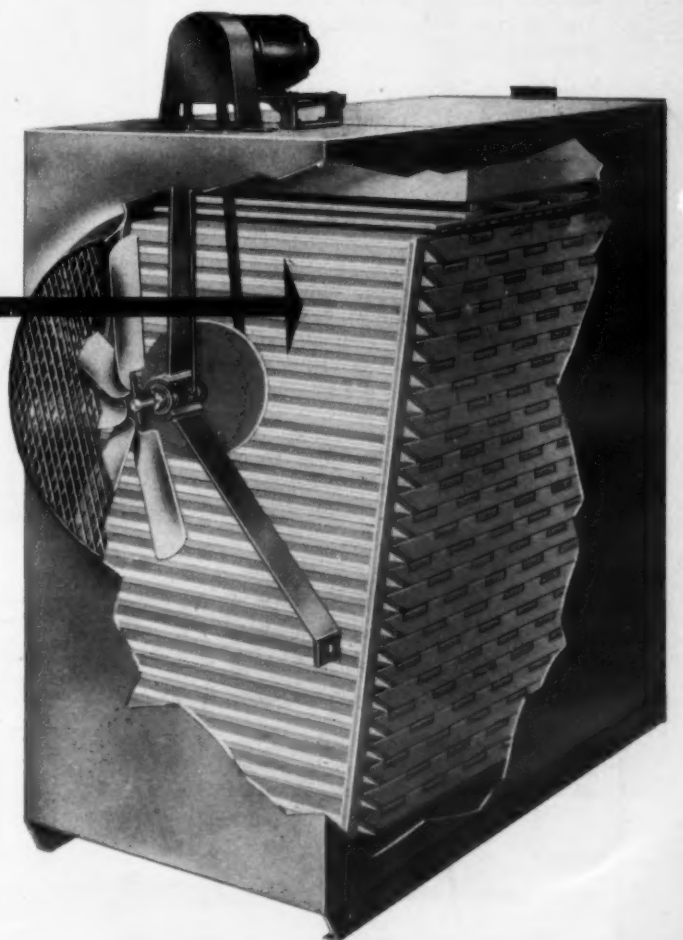
The protection against rotting by fungus attack is only part of Halstead & Mitchell's quality story. When you buy, check . . . electrically welded sheet-steel cabinets with *individual* coatings of Vinsynite, Vinyl Zinc and chlorinated rubber, to add important years of life and eliminate electrolytic or galvanic action . . .

stainless steel fans and shafts . . . weather shielding against ice and rain for outdoor operation . . . gravity-type distributing pans which eliminate windage losses since atomizing by spray nozzle is unnecessary . . . Everdur Bolts throughout for ease of disassembly after years of service.

2 thru 100 Tons

At Leading Refrigeration & Heating Wholesalers Everywhere

OFFICES: BESSEMER BUILDING • PITTSBURGH 22, PA.





## Arkansas Utility Charged Unfair--

(Concluded from Page 1, Col. 3)  
a destructive competition with private enterprise."

Describing the complainant as a mercantile association with

offices at 904 Center St., Little Rock, the petition was filed under the state public utilities act by Eugene R. Warren who was acting as counsel for the contractors

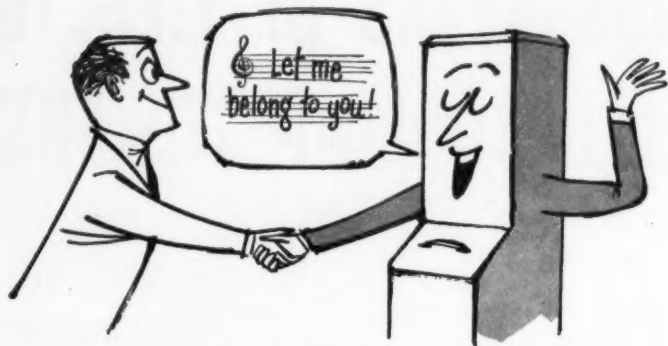
MR. JAMES J. WISCHUSEN  
Engineering & Refrigeration, Inc.  
Philadelphia, Pa.



## "The Carrier Icemaker

# is its own best salesmaker"

—claims Mr. Wischusen



"When it comes to netting cold cash the hottest item in our line is the Carrier Automatic Icemaker—because it is its own best salesmaker.

"That doesn't mean it completely sells itself. But it comes close! For once a prospect gets the inside story of comparative ice costs he usually reaches for his pen.

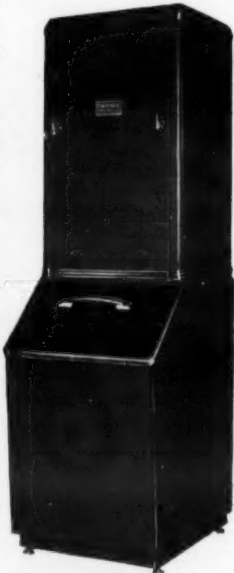
"The convincing Carrier cost analysis creates the kind of conversation the business-minded man understands. It certainly makes money talk when the figures reveal savings up to 80% or more over commercially delivered ice.

"The clincher is a list of features as long as your arm. Like: Choice of cubes and three different grades of crushed ice from the machine's factory-built-in crusher. Simple operation without complicated choppers or cutting wires. Small floor-space requirement (only 24 by 25 inches). Self-cleaning action that almost eliminates hand-cleaning bother. Easy waist-high bin access. And, of course, the well-known Carrier dependability."

Ask Jim about prospects and he'll tell you, "There are plenty within 'shoe leather' range. . . Restaurants, diners, cafes, hotels, supermarkets, fish and poultry markets, hospitals and other institutions—wherever daily ice needs run 150 lbs. or more."

With that philosophy, four salesmen, direct mail, a loyal following, and realistic selling effort, Engineering & Refrigeration, Inc., has been converting this hot item into cold cash for five consecutive years.

Add this salesmaker to your line. Mail the coupon for complete information. Or get it from your nearest Carrier distributor. He's listed in your Classified Telephone Directory.



## Carrier

air conditioning  
refrigeration  
industrial heating

CARRIER CORPORATION

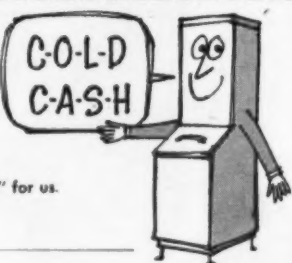
310 S. Geddes St., Syracuse, New York

Show me how your "hot item" can spell "cold cash" for us.

Name \_\_\_\_\_

Present business or occupation \_\_\_\_\_

Address \_\_\_\_\_



association, according to the report.

The petition said the commission had authority under the act to order public utilities to stop "improper, unfair, and uneconomic business practices."

While only air conditioning and refrigeration equipment were listed in the complaint, the request for cessation of all non-public utility operations could extend to all appliances distributed and sold by the gas company such as cooking and heating stoves, water heaters, floor furnaces, and laundry equipment.

"The defendant," the complaint asserted, "for a number of years has established and followed the practice of dealing in the retail sale and installation of appliances, including air conditioning units and equipment. In the following said practice the defendant bids and contracts in direct competition with private businesses who are also engaged in the sale of appliances, including air conditioning units and equipment.

"Complainants assert that the merchandising of fixtures and appliances is properly a non-public utility operation. Defendant occupies the favored condition of a protected monopoly . . . with an assured profit. . . . Being assured of a substantial profit from public utility operations it can well afford to devote part of these public utility-derived profits in competition with those non-public utility competitors whose entire income must be derived through normal competitive business operations."

The petition contended that because the company held special privileges from the state it should not be permitted "to engage in competition with private businesses who are forbidden to compete with it in its public utility operations."

No immediate comment on the charges was made by R. W. Curran, Arkansas district manager for Arkansas-Louisiana, who said the firm had been merchandising appliances since 1929.

## Mathieson, Olin Merger--

(Concluded from Page 1, Col. 3)  
plosives, firearms and ammunition, some plastic products, and electrical products, and maintains a large research staff to develop new and improved products.

(There has been some evidence recently that Olin has been "taking a look" at the refrigeration and air conditioning field).

Based on 1953 figures, the combined corporation will have total assets of about \$500 million and sales of over \$500 million, including sales of non-consolidated subsidiaries and licensees.

Both companies currently employ about 18,000 employees each. Olin operates 18 plants in this country.

Mathieson has 25 plants in the U. S. and 16 in foreign countries.

## Super Markets--

(Concluded from Page 1, Col. 5)  
during a business session around the theme "How to Build a Distinctive Selling Personality Through Your Stores."

MONDAY, MAY 24

9 a.m.—Business session. Theme: "How to Build a Distinctive Selling Personality Through Your Stores."

"The Super Market Industry Speaks" (Part I), Curt Kornblau, manager, Super Market Institute Research and Information Service.

"How to Build a Distinctive Selling Personality in Your Stores," Fred Meijer, vice president, Meijer's Super Markets, Inc., Grand Rapids, Mich., and members of Store Operations Committee: W. T. Dahl, Dahl's Food Enterprises, Des Moines, Iowa; Garret Vander Hoening, Van's Food Dept. Stores, Inc., Holland, Mich.; Jack Genser, Steinberg's Limited, Montreal, Canada.

"Building a Distinctive Selling Personality Through Self-Service Meat Department," Henry J. Eavey, Henry J. Eavey, Inc., Richmond, Ind.

"Building a Distinctive Selling Personality Through Your Grocery and Other Departments," Harry Sandler, vice president, Star Market Co., Newtonville, Mass.

"Building a Distinctive Selling Personality Through Store Layout and Design," B. Sumner Gruzen, architect, Kelly & Gruzen, New York City.

"Building a Distinctive Selling Personality Through Store Color and Lighting," Howard Ketcham, color engineer, New York City.

TUESDAY, MAY 25

9 a.m.—Business session. Theme: "How To Build Distinctive Selling Personality Through Your People."

"The Super Market Industry Speaks" (Part II), Curt Kornblau.

"The Climate in which the Personality Grows," Super Market Institute Committee on Personnel: Kenneth Rush, W. W. Wilt, Inc., Elkhart, Ind.; Charles Martin and Lee Howard, Wrigley Stores, Inc., Detroit; Elwin Kleihauer, Standard-Humpty Dumpty Super Markets, Oklahoma City; Gordon Garnett, Alpha Beta Food Markets, Inc., La Habra, Calif.; M. M. Rochester, J. Weingarten, Inc., Houston, Texas; H. N. Caplinger, Liberal Markets, Inc., Dayton.

"Part-timer Today, Manager Tomorrow," Charles Wolven, part time employee, Rudy's Markets, Inc., Kankakee, Ill.

"Matching Personnel and Company Personality," Gordon Garnett, Alpha Beta Food Markets, Inc., La Habra, Calif.

"Communications—the Shortest Distance Between Top Management and the Customer," written and produced by Charles Martin, Wrigley Stores, Inc., Detroit, and presented by Charles Martin and Lee Howard, Wrigley Stores, Inc., and Kenneth Rush, W. W. Wilt, Inc., Elkhart, Ind.

WEDNESDAY, MAY 26

9 a.m.—Business session. Theme: "How to Build a Distinctive Selling Personality in Your Advertising."

"The Climate of Today's Super Market Advertising," M. M. Zimmerman, publisher, Super Market Merchandising, New York City.

"How to Analyze Your Operation to Discover Your Distinctive Selling Personality Quotient," William Leeder, vice president, The H. A. Smith Markets, Inc., Port Huron, Mich.

"How We Have Built Distinctive Selling Personality into Our Advertising," Joseph P. Mott, Mott's Super Markets, Hartford, Conn.; George Houston, Betten-dorfs, St. Louis, and others.

"New Tools to Help You Build a Distinctive Store Personality," by members of Super Market Institute Public Relations Committee, George Jenkins, Publix Super Markets, Inc., Lakeland, Fla., chairman.

## American Standard--

(Concluded from Page 1, Col. 2)  
sumer prices will be of benefit to both consumers and those engaged in the specification or sale of plumbing fixtures.

"They will simplify the calculations required in the selling and estimating activities of plumbing wholesalers and contractors as well as builders and architects."

Contractors from now on will get a suggested consumer price list instead of a net price list. The contractors will be told that they should be able to buy the products thus listed at a 25% discount. If the wholesalers go along with this, then the contractors will be selling at a 33 1/3% markup, at least.

Company officials said that the change was made on the basis of requests from contractors, who said they found it inconvenient not to be able to show prospects an actual price list.



Stop service calls . . . keep out rust and sludge . . . open new doors to sales acceptance!—with coolers, ice-makers, sell "Taste-Master"!—checks chlorine, traps sediment; promotes service-free satisfaction with all water processing appliances. Write—

Filtrine MANUFACTURING CO.  
BROOKLYN 38 • N. Y.  
"Water Coolers and Filters for 40 Years"

more profits for you . . . and your customer! Warren's new line of Super Merchandisers gives EASY REACH . . . EASY SHOPPING . . . to

customers of average or below-average height!



With or without superstructure. Sliding mirror canopies—either regular or transparent—are ideal for quick restocking in service-from-rear operations.

WRITE TODAY FOR BEAUTIFUL FULL-COLOR LITERATURE!

WARREN REFRIGERATORS • P. O. BOX 1436 • ATLANTA 1, GEORGIA



# MEMO TO APPLIANCE RETAILERS:

This advertisement, announcing the creation of American Motors Corporation, is of prime importance to every appliance retailer. We of Kelvinator and Leonard reprint it here--as a pledge, and a promise. A pledge of continuing leadership, and a promise to open ever-new horizons for better living through the newest and best in home appliances.



*To the Ten Million Owners of Hudson and Nash Automobiles... Kelvinator and Leonard Appliances*

## A Message From AMERICAN MOTORS

**T**ODAY, the merger of the Hudson Motor Car Company and the Nash-Kelvinator Corporation has become an accomplished fact.

This news is of special significance to all who now own Hudson and Nash automobiles, Kelvinator and Leonard appliances--and who will own them in the future.

For the consolidation of these four respected names creates a new and powerful force in American industry. AMERICAN MOTORS, with assets of \$350,000,000 and with aggregate yearly sales of \$700,000,000.

As Divisions of AMERICAN MOTORS, each benefits by the greater strength of all, in financial resources, in facilities, in dealer organizations, and above all in the *imaginative research* that will build even greater engineering leadership for these time honored names.

Moreover, AMERICAN MOTORS provides a network of plants for most efficient production--with its own complete appliance manufacturing facilities, body plants, foundries, forge shops... with its own engine, transmission and axle facilities--including its own plastic plant. These resources mean greater economies and finer products for the American public.

Likewise, AMERICAN MOTORS has plants in many foreign countries, contributing to world trade and the strength of the international economy.

Above all, AMERICAN MOTORS is pledged to continue leadership in value--in the fresh, new engineering concepts that set today's pattern of progress.

**Hudson and Nash are great pioneers, great innovators in the Automotive Industry.**

¶ Hudson and Nash are the world's largest

makers of unitized construction automobiles--the stronger, safer, *better* way to build a motor car--the one method recognized by domestic and foreign car builders alike as the most advanced of all body construction.

¶ Hudson and Nash are responsible for today's trend toward compact cars to meet current driving needs--with the Jet and Rambler.

You see striking evidence of Hudson and Nash advanced automotive concepts in every car that bears their names.

At your Hudson dealer are cars that lead all others in stock-car performance... the Hudson Hornet and its running mate, the Wasp. And the Hudson Jet--an outstanding compact car at an economy price.

At your Nash dealer you will see the automobiles that set the pace for continental styling and ahead-of-time comfort and safety features--Ambassador, Statesman, Rambler. Here you will see America's lowest price sedan, station wagon, hard-and-soft-top convertibles. And here you can find completely air conditioned cars at hundreds of dollars less than others so equipped. At your Nash dealer, too, is the Metropolitan--a totally new and different kind of automobile.

**And in the American home, the names of Kelvinator, Leonard and ABC have pioneered a new way of living.**

Today, at leading appliance dealers you will find Kelvinator, Leonard and ABC Products that lead in value. **Kelvinator:** refrigerators, electric ranges, home freezers, washers, dryers, ironers, room coolers, water heaters, garbage disposers, kitchen cabinets, ice cream cabinets and commercial refrigeration products. **Leonard:** refrigerators, electric ranges, home freezers. **ABC:** washers, dryers, ironers.

**To Hudson, Nash, Kelvinator, Leonard and ABC Owners  
Past--Present and Future**

You, more than anyone else, are entitled to know these facts--

The priceless identity of Hudson, Nash, Kelvinator and Leonard products will be preserved--as well as the sound policies which won your confidence. Your investment is secure--now and for the future.

Hudson dealers will continue to sell and service Hudson automobiles. Nash dealers will continue to sell and service Nash automobiles. Kelvinator and Leonard dealers will continue to sell and service Kelvinator and Leonard products.

And this announcement of AMERICAN MOTORS adds new value to every Hudson and Nash car on the road today--to every Kelvinator, Leonard and ABC appliance in the home.

### **A Promise for the Future**

We pledge we will continue to improve our record of leadership at AMERICAN MOTORS, for we believe that our industries are still young... that the problems of motorizing the world are far from final solution... that new horizons for better living through electrical home appliances lie ahead... and that to reach our goal we must, of necessity, out-think, out-engineer and out-value our competitors.

This, then, is the driving force behind the merger of Hudson and Nash-Kelvinator. You will see it reflected in our plants, in our engineering laboratories, in our dealerships and in the products that bear our honored names.

*G. W. Mason*

G. W. MASON  
President and Chairman of the Board  
AMERICAN MOTORS CORPORATION

# AMERICAN MOTORS



HUDSON Hornet, Wasp, Jet • NASH Ambassador, Statesman, Rambler, Metropolitan • KELVINATOR and LEONARD Home Appliances



## This 4-Point Plan Moves Trade-Ins Fast

1. Moderate Allowances
2. Good Repair Service
3. Constant Promotion
4. Careful Sales Check

DES MOINES, Iowa—O'Callaghan's, Inc. here moves its trade-ins fast . . . and profitably.

It does so, according to R. D. O'Callaghan, president, by (1) discouraging excessive trade-in allowances, (2) fixing up all used items except "junkers" so they'll bring a good price, (3) promoting used merchandise constantly, and (4) checking regularly to see how the salesmen "stand" on their trade-ins.

In 1952, the company sold \$20,000 worth of used appliances, mostly washers. (New washer volume was over \$70,000 and the nearest to that were refrigerators with \$30,000 gross.)

### Always Make a Profit

"We not only move our trade-ins rapidly, but we make a profit on them," O'Callaghan pointed out at a meeting in Omaha of the Nebraska-Iowa Electrical Council.

"In the six months ending in May, we had sold over \$9,000 worth of used appliances which gave us a net of over \$1,500 after we charged one man's time against the used appliance gross. Our used appliance sales totaled over \$1,200 in June."

Here's how the firm handles its trade-ins, as explained by O'Callaghan, who was recently elected president of the newly-formed Central Iowa Radio & Appliance Dealers Association, an affiliate of the National Appliance & Radio-TV Dealers Association:

### Figure Commissions Less Allowance

"In the first place, excessive trade-in allowances are discouraged by deducting the allowance from the sales price before we figure the commissions on a new sale. However, commission on the sale of used merchandise is the same as the commission on a new sale. Our sales commission averages about 10%.

"We make a profit on the used merchandise because we do something with it. For example, if we allow \$30 on a washer, we may put \$25 worth of parts plus labor into it. However, we can sell it for over \$100.

"We try to sell every used washer for \$10 to \$20 and sometimes more over our total cost we have in it. If we didn't fix them up we couldn't get much of a price for them.

"We believe in a steady promotion in selling used appliances. We keep a used advertisement running most of the time.

### Salesmen Responsible For Trade-Ins

"At the end of the month we always check with each salesman on how his trade-ins stand. By that I mean we check to see if he has sold as much or more used merchandise than he took in trade. If he gets too far behind we start to put the heat on, because we leave the amount he allows fairly well up to him.

"In other words, we keep the used merchandise first in his mind. If there is a toss up, I would just as soon see the salesman sell the used merchandise instead of the new.

"When we figure up the sales-

man's sales at the end of the month, we figure the net cash he actually gets less the cost of the merchandise. We do not figure the used item at any value until it is sold and then it figures at 100%. This is the way we have of knowing if the salesman is making any money for us."

O'Callaghan continued:

"We keep our rebuilds or like-new washers up near our new ones. Our big trouble is to get them ready for sale fast enough.

"We are always behind on our certified rebuilds. I don't mean we don't have plenty in the basement to get ready, but one man can't keep up and I am not sure more men would pay at the price of labor.

"When a used appliance comes in, it is given a tag showing where it came from and how much was allowed for it. Then it goes in the basement and is checked by the serviceman as to what it needs to put it in shape for sale.

### Don't Sell 'Junk'

"If it has to be junked (as some do), he marks it 'Junk,' because we do not like to sell something for any price if it is of no value to the customer. If the customer wishes he had bought new merchandise instead of the used, we will take it back and give him full price for it up to 90 days.

"When a used appliance is repaired, the salesman can tell at a glance from the card what was

allowed for it, the parts and labor put into it, and our net cost.

"We even take trade-ins in our used department.

"We strip our junk merchandise—take off the motors, etc. We sell quite a lot of used motors, wringers, and other parts, and what we have left we sell to the junkman for \$1.50 to \$2."

O'Callaghan stressed that every buyer of used merchandise is a potential buyer of new merchandise.

"So," he said, "we want the customer to feel he is getting his money's worth from the used merchandise he bought. A dissatisfied customer can do more harm than a whole page of advertising can do good."

Incidentally, O'Callaghan added, "we do not have a salesman who could not go in the basement and repair a washer if he had to."

The company employs a home economist "because we believe there are times when a woman can do more than a man to keep the

housewife satisfied. She does everything from washing a load of clothes to baking a cake and going out to the home in her car and bringing the wife and kids down to the store and home again."

In addition to the trade-in problem, O'Callaghan has some views on how some other special problems of the appliance dealer might be licked.

### Value of 'Brand Acceptance'

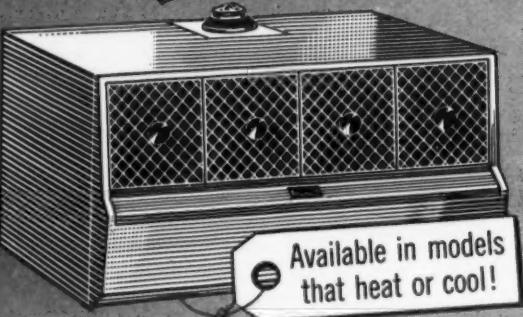
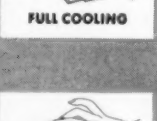
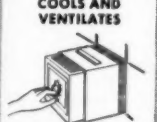
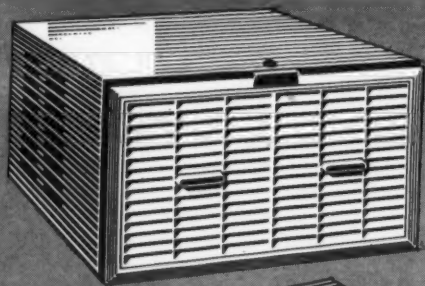
Discussing these problems before a meeting of the American Home Laundry Manufacturers Association parts and service managers in Chicago, he said manufacturers, distributors, and dealers have two common objectives: "Brand acceptance through satisfied customers, and everyone making a profit."

In suggesting how to gain these objectives, O'Callaghan first considered what the dealer should do.

"He must merchandise at the lowest price that will permit the

(Concluded on next page)

# SERVEL EXCLUSIVE close sales for



## SERVEL'S 3 AIR CONDITIONERS GIVE DEALERS A BIG SELLING EDGE!



### Best Buy on the Market!

A FULL ¾ H.P. unit at a price of \$299.50\* is the biggest value your air conditioner prospects will find anywhere! Yet you make full profit on each and every sale! Your greatest opportunity ever to get fast turnover without sacrificing a penny of your profits!

\* Suggested retail price.



### Fits Casement Windows!

Here's an air conditioner that fits casement windows without installation extras or window remodeling! Creates thousands of new prospects for you! And Servel's ½ and ¾ H.P. models are priced to give you real volume in this wonderful new market!



### Quietest, Handsomest Unit Made!

Servel dealers are ready for the millions of prospects who want a Deluxe air conditioner at a popular price! These ¾ and 1 H.P. Servel beauties have all the features that excite the imagination of air conditioning prospects! Available in models that heat as well as cool to further add to your number of prospects!

### \*GREATEST ADVANCE IN 25 YEARS!



Here's the most spectacular new appliance in the refrigeration field in 25 years! Servel Electric Wonderbar® opens a huge new market! Wonderbars are being bought for offices, summer homes, nurseries, patios and boats . . . as well as for use in every room in the house! AC or DC current. The big selling season is coming up soon! Be ready!

\*Reg. U. S. Pat. Off.

### \*FREEZER PROFITS!

You can get a bigger share of that growing freezer market with Servel . . . because only Servel minimizes running costs for your customers with Exclusive Cold-Seal Construction! Upright and chest type models, 9 to 22 cu. ft.



### \*WATER HEATER NEWS!

There are no walkaways when you sell Servel! Because Servel offers an automatic water heater for every size family . . . for every size budget! A choice of gas or electric models! Counter and upright styles. 20 to 80 gallon capacities.



## ATTENTION Servicemen!

Refrigeration and air conditioning units rebuilt . . . We specialize in Goldspot and other domestic and small commercial open and hermetic pumps. . . . Complete machine-shop facilities.

Engineering Research Associates, Inc.  
3475 East Nine-Mile Road  
Hazel Park, Mich., Slocum 7-0026



## How Dealers, Mfrs. Can Cooperate--

(Concluded from preceding page) customer having satisfaction," O'Callaghan said. "This means he should operate efficiently, but that he should be careful what corners he cuts to get that price down.

"He's hurting the common objective if he saves by not doing a thorough selling job, delivering the merchandise in a proper, professional way, installing it correctly, showing the customer how to use it—and I mean everything it can do—and by not keeping it in good operating condition.

### Stock, Sell Service

"Also, the dealer should stock service parts and have trained people in his organization. . . .

"Finally, the dealer should be proud of that brand of his, recognize it for its full worth as a darned good value—not something to be used as a come-on to switch a sale or a price football to build a

reputation for deals and cheapness."

The supplier, O'Callaghan continued, "by carrying out his full responsibility to the two objectives . . . can do much to alleviate the dealer's problems. . . .

"Let's start with quality control: Too much merchandise gets out of production that hasn't had sufficient care given to the inspection and testing of components and finished product.

"Of course we recognize that there's constant pressure for lower prices. That's our competitive system in action and it would be wrong if that pressure weren't there.

"But what the fat-headed element in management must learn is that there's a dollar savings—not to mention whatever your nerves and freedom from ulcers may be worth—if things are right when they leave the factory. This becomes more difficult and more

important as our merchandise becomes more complex. . . .

"And this complexity calls for something more. When you bring out new merchandise, don't let us guess what goes where and how to get at it. . . . That means we need quick availability of diagrams and service literature. . . . And, while we're asking Santa Claus for things, let's toss in a request for a reasonable reserve of new parts when the line first breaks."

### Have Dealer Service People Demonstrate

O'Callaghan also asked that dealer service people be trained in setting up washers whenever something new is added.

"Come into our stores and hook one up on our floor," he urged. "It will help sales and will give us a demonstration. Maybe you know something or have a part or a new type of tool we don't know about. . . .

"Here I'm guessing, but I suspect that we'd have fewer problems

## SPECIALTY SELLING METHODS

if the buyers were a little tougher in their own purchasing of materials and parts. . . .

"One place in which many dealers need help from you . . . is in keeping our service operations profitable. There are two things the manufacturer can do to help here: First, he can assist us in setting up systems of controls and bookkeeping, and in setting prices right for our individual operations. Second, there should be a fairer warranty-period compensation.

"I believe that the manufacturer should have in his price structure money to reimburse the dealer during his first year of service, as is done in the automobile industry. The dealer is only kidded when there's talk of, say, a 36 to 40% discount when it costs him nearly \$20 per unit for the first year's service."

O'Callaghan offered these additional observations:

"Service, to we servicing dealers—your best ones, the outlets that really build your reputations—is a business all its own, out to make money.

### Customer Obligation Is Continuous

"I believe that the best way to keep in business is to consider your firm as having entered into a pact of mutual benefits and that the obligation to the customer is continuous.

"The customer, as I see her, did not buy so much iron and steel. She bought satisfaction, service in her home. . . . Our service is our salesmen and our sales are our service.

"I believe the key to successful operation is a growing clientele where the customer depends on us for needs and we depend on him for more business, through his family and friends. . . .

"Service is a sales cost, and a big one. I believe for the small dealer, and the big one, too, quality instead of quantity in the number of salesmen is essential. . . .

### Salesmen Must Know Product Thoroughly To Sell It

"Our salesmen must know all they possibly can about the products they sell . . . and how to make all small service calls and minor installations. The reason for this is that they are the ones who must get to know the customers, and the service department can then have more time for the major repairs. Also, this way, you don't need as many servicemen and you can pay them more and have better men.

"Do all in your power to persuade the companies you represent to show more selectivity in franchising their dealers. Then you will have done the one most important thing to show your recognition of the worth of loyalty and teamwork and customer goodwill."

### Phila. Distributor Named Serval Appliance Outlet

EVANSVILLE, Ind.—Raytheon Distributors, Inc., of Philadelphia, with a branch operation in Harrisburg, was recently appointed Serval appliance distributor, according to Neal E. Schuman, field sales manager of the appliance division of Serval, Inc.

Raytheon Distributors is a subsidiary of Raytheon Mfg. Co. of Chicago.

Lawrence Phister is general manager for both Philadelphia and Harrisburg, and Hugh Mullens is manager at Harrisburg. The firm's territory includes southeastern Pennsylvania, southern New Jersey, and Newcastle county, Del.

# \* FEATURES you!

## \* DEMONSTRATION OF ONLY REFRIGERATOR THAT MAKES ICE "CUBES" WITHOUT TRAYS, AND PUTS 'EM IN A BASKET AUTOMATI- CALLY, IS MOST POWERFUL SALES- CLOSER IN THE INDUSTRY!

Dealers everywhere agree! Serval's "No Messy Ice Trays" Demonstration is the most dramatic in the industry! And Serval's huge 80 lb. freezer compartment and completely automatic defrost head a list of the most wanted features ever offered to the consuming public! That's why closing sales is easier with Serval! And remember a Serval in a home of a satisfied customer can lead to many more sales! It builds desire-to-buy in all who see it in action!



MODEL 1249C



# Serval

The name to watch for great advances in  
REFRIGERATION and AIR CONDITIONING

Serval Inc., Evansville 20, Indiana

In Canada, Serval (Canada) Ltd., 548 King St. W., Toronto, Ontario



I, TOO, WANT TO CASH IN ON THE LINE WITH THE SENSATIONAL SELLING FEATURES! HAVE THE NEAREST SERVEL DISTRIBUTOR CONTACT ME IMMEDIATELY!

Name.....

Address.....

City..... Zone..... State.....

Dept. ACR517

## SEAMLESS OR WELDED REFRIGERANT RECEIVERS MADE TO ORDER



Horizontal or vertical types with dimensions up to 9 inches outside diameter and lengths to 5 feet. Manufactured of seamless or welded carbon steel tubing, they can be supplied with as many openings as required with or without valves or fittings. Prompt deliveries to meet your production requirements in any quantities desired. Please include prints and specifications with inquiries.

MURRAY TUBE WORKS

P.O. BOX 476 ELIZABETH, N. J.  
Elizabeth 4-1200





## INSIDE DOPE

Learn to live and laugh—  
Thus delay your epitaph

By **GEORGE F. TAUBENECK**

(Concluded from Page 1, Col. 1)  
in a few minutes. Not so many after midnight, but they're faster.—**THOMAS NAST.**

Intellect is invisible to the man who has none.—**SCHOPENHAUER.**

Take time to play—it is the secret of perpetual youth.—**H. C. COLTON.**

### Pregnant Thoughts

I forecast that if all the chambers of commerce would operate properly-led night schools for sales

clerks, purchasing would so increase that there need be no unemployment; the Federal budget could be balanced, and taxes could be reduced.—**ROGER W. BABSON.**

Silence is one of the hardest arguments to refute.—**MAURICE R. SHOCHATT.**

The Christian who forgets the graciousness of nature forgets in the end the naturalness of grace, and finds himself in a sort of spiritual vacuum.—**GERALD VANN.**

Unless we give part of ourselves away, unless we can live with other people and understand them and help them, we are missing the most essential part of our own human lives.—**DR. HAROLD TAYLOR.**

What defeats our appeal to women to find dignity in domesticity is the fact that our society is saturated with other values.—**MIRRA KOMAROVSKY, Women in the Modern World.**

### Letter of the Week

Listen, Son: I am saying this to you as you lie asleep, one little paw crumpled under your cheek and the blond curls sticky wet on your damp forehead. I have stolen into your room alone. Just a few minutes ago, as I sat reading my paper in the library, a hot, stifling wave of remorse swept over me. I could not resist it. Guiltily I came to your bedside. These are the things I was thinking, son:

I had been cross to you. I scolded you as you were dressing for school because you gave your face merely a dab with a towel. I took you to task for not cleaning your shoes. I called out angrily when I found you had thrown some of your things on the floor.

At breakfast I found fault, too. You spilled things. You gulped down your food. You put your elbows on the table. You spread butter too thick on your bread. And as you started off to play and I made for my train, you turned

and waved a little hand and called "Goodbye," and I frowned, and said, "Hold your shoulders back."

Then it began all over again in the late afternoon. As I came up the hill road I spied you down on your knees playing marbles. There were holes in your stockings, I humiliated you before your boy friends by making you march ahead of me to the house.

After dinner, when I was reading my paper in the library, you came and stood by the open door. I, impatient at the interruption, snapped at you, "What is it you want?"

You said nothing, but ran across in one impetuous plunge; and threw your arms around my neck and kissed me, again and again, and your small arms tightened with an affection that God has set blooming in your heart and which even neglect could not wither. And then you were gone, pattering up the stairs.

Well, son, it was shortly after-

wards that my paper slipped from my hands and a terrible sickening fear came over me. Suddenly I saw myself as I really was, in all my horrible selfishness.

What had habit been doing to me? The habit of complaining, of finding fault, of reprimanding—all of these were my rewards to you for being a boy. It was not that I did not love you, it was just that I expected so much of youth.

And there was so much that was good, and fine, and true in your character, you did not deserve my treatment of you, son. All this was shown by your spontaneous impulse to rush in and kiss me goodnight. Nothing else matters tonight, so I have come to your bedside in the darkness, and I have knelt there, choking with emotion, and so ashamed. It is a feeble atonement. I know you would not understand these things if I told them to you during your waking hours, yet I must say what I am saying. I must burn sacrificial fires alone, here in your bedroom, and make free confession. And I have prayed God to strengthen me in my new resolve.

Tomorrow I will be a real daddy! I will chum with you, and suffer when you suffer and laugh when you laugh.

AUTHOR UNKNOWN

### Out of Our Mailbag

HarderFreez Div.,  
Tyler Fixture Corp.,  
Niles, Mich.

Editor:

Attached is a copy of the letter which accompanied your book, "It's a Great Life," mailed to our leading HARDERFreez accounts.

We are sure that they will find it very interesting and give them some new ideas on salesmanship.

Gentlemen:

There is still some question in the selling field as to whether a salesman is made, or whether he is born.

Since there are many opinions and controversies over this fact, we refuse to take sides.

Better than that, we are sending you (under separate cover) with our compliments a copy of "It's a Great Life" by George F. Taubeneck, who points out many sales ideas that have been practiced by top-flight specialty salesmen.

This book may give you some new ideas—will certainly refresh the many you have had in your sales lifetime.

We hope you find it interesting and profitable to you and members of your organization.

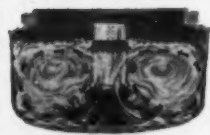
Harderfreez Div.

Never before a washer and dryer so well protected against rust!

The gleaming, snowy-white cabinet surfaces of both washer and dryer will stay white forever—thanks to Lifetime Porcelain. Inside, too, Frigidaire uses porcelain on tub and drum where it counts the most for greatest protection against rust and moisture. Lifetime Porcelain resists scratches, scuffs, and stains. Remember, some automatic washers and dryers have porcelain tops, some have porcelain tubs and drums, but *only* Frigidaire offers such complete all-porcelain protection.



Clean more gently, get out more dirt, the Live-Water Action way!



When Live-Water Washing Action goes to work, no abrasive dirt or particles of grit are left behind to gnaw away and damage fabrics. Hot suds surge through every fibre, forcing out stubborn dirt that ordinary washing actions can't budge. Yet Live-Water Action is so gentle, it's completely safe even for new miracle fabrics. And once clothes are clean, they stay clean. Frigidaire's Float-Over Rinsing lifts up all dirt that's trapped in sudsy water and floats it away down the drain. It's easy on hot water, too, using from 2 to 8 gallons less per load than many makes. Top-opening door makes loading easy. You can add or remove clothes at any time without water spilling out.

World's fastest automatic spin-dry gets out 20% more water than any other washer made. Clothes come out lighter, easier to handle... many pieces are ready to iron. Performance is dependable, too. Unimatic power mechanism is all one unit, cased in steel and lubricated for life. No belts or pulleys to wear out!

Be modern... launder electrically!

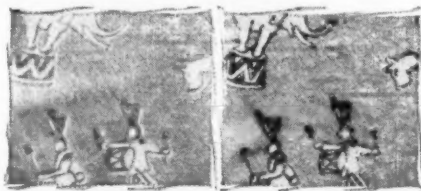


Dry without fading, without snagging or fraying, the Filtra-matic Dryer way!

Two swatches shown at right were washed together 25 times. The dull, faded swatch was dried in the sun—the bright-colored swatch in a Filtra-matic Dryer. See how much longer a Filtra-matic Dryer keeps clothes new-looking. No risk of snags, either—clothes tumble freely in smooth, porcelain-finished drum. Just set time on one dial—heat, by fabric name, on another. Clothes come out soft and fluffy—never stiff or creased with



hard-to-iron wrinkles. And the built-in Ozone Lamp keeps them fresh and sweet smelling.

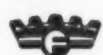


Sun Dried

Filtra-matic Dried

Frigidaire's exclusive Filtrator collects lint, traps excess moisture—no venting or plumbing needed. With a Frigidaire Porcelain Pair, you can wash and dry any time it's convenient, in any weather. Why not start enjoying new freedom from dreary washdays today?

Ads like this will appear in full color in Life, The Saturday Evening Post, McCall's, Better Homes & Gardens and many other magazines in 1954!



**Frigidaire Porcelain Pair**

Automatic Washer and Electric Dryer built and backed by General Motors

**usAIRco**  
30 YEARS OF AIR CONDITIONING

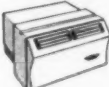
A complete  
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Packaged Air Conditioners 2 to 15 h.p.



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AIR CONDITIONING  
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MINNEAPOLIS 14, MINNESOTA

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You'll sell **MORE**  
new refrigerators  
if their trays make  
**MORE** ice cubes!



These are days for *selling . . . hard selling!* *Nothing* sells so strongly as a refrigerator's *features*.

So . . . use the NEW Inland Ice Cube Tray that makes MORE ice cubes, as a big feature for selling refrigerators. Your customers can *see* it, understand its value *instantly* . . . and they'll *want* it immediately!

In showing a refrigerator, open the door, draw out an Inland Ice Tray and say that it's *new*, that it makes *more* ice cubes . . . going on then to talk of the beautiful colors, the "Magic Touch" lever, the "Lift! Tilt!" action . . . the easy, fast *convenience* of Inland Trays!

Yes, here's the **FEATURE** that will sell MORE refrigerators!

*This advertisement appears in The Saturday Evening Post and Better Homes & Gardens. Read it. See how it sells the new Inland Ice Trays as the feature that will help you sell more refrigerators. It's really YOUR advertisement. USE it, in YOUR selling!*

## Now! Ice Trays in Gay Colors!



*They give more ice cubes, faster!*

Of course you want *more* ice cubes! And now you can *have* them . . . with the new Inland "Magic Touch" Ice Cube Tray. *Plenty* of cubes, sized *just right* for the glasses, at a *lift* of the lever, a *tilt* of the grid. Easy, fast, convenient! Get these new Inland Trays . . . now in *four gay colors* . . .

to replace the old, battered, out-moded ice cube trays in your present refrigerator. You'll *love* them!

*And when you buy a new refrigerator, be sure it is fully equipped with Inland "Magic Touch" Ice Cube Trays. Just ask your dealer for them.*

"Magic Touch"   
**ICE CUBE TRAYS**

INLAND MANUFACTURING DIVISION, General Motors Corporation, Dayton, Ohio



# Now! More Ice Cubes Easier, Faster —



## with this new **Inland Ice Tray!** (4 GAY COLORS)

More ice cubes! Sized *perfectly* to fit your glasses. The *new* Inland Ice Tray gives you *three full rows* of sparkling ice cubes, free and dry, ready to use! So fast, easy and convenient, too . . . with a *lift* of the "Magic Touch" lever and a tilt of the grid. Get these *new* Inland Trays

. . . now in *four gay colors* . . . for your present refrigerator, any make!

And when you buy a new refrigerator, be sure it is fully equipped with Inland "Magic Touch" Ice Cube Trays. Just ask your dealer for them.

## "Magic Touch" **ICE CUBE TRAYS**

INLAND MANUFACTURING DIVISION, General Motors Corporation, Dayton, Ohio

Window and store  
display will  
produce **IMMEDIATE  
REPLACEMENT** sales!



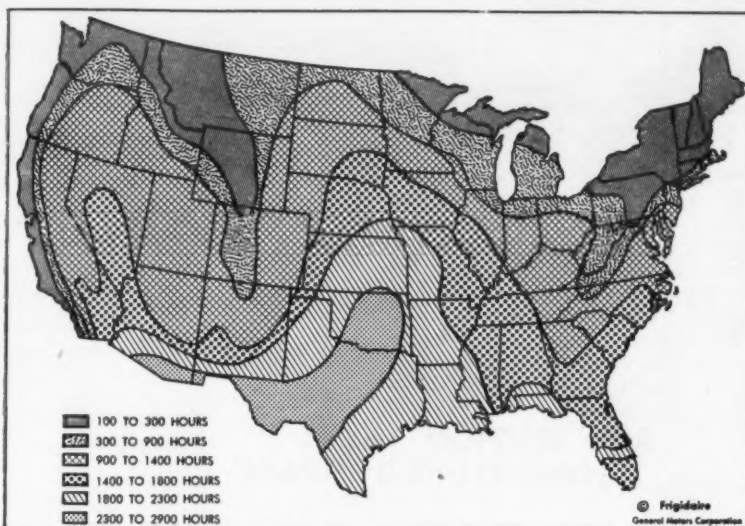
In your locality there are literally *thousands* of people with old, battered, *inconvenient* ice cube trays. They're ready prospects for the new Inland Trays **TODAY!**

Display them in your window and store. Customers will stop, look, ask, **BUY**. You'll make quick, easy sales, selling *replacement* Inland trays.

You'll do **MORE** than that! Many of these customers are prospects for new refrigerators now. And you'll get many *good* prospects for *future* refrigerator sales! The secret is . . . display, show, talk, sell . . . for *immediate good* sales, for *future big* sales . . . for *profit!*

◀ This is another of Inland's advertisements in *The Saturday Evening Post* and *Better Homes & Gardens*. It sells trays . . . Inland Ice Trays . . . for *immediate replacement* of old trays, for *immediate user satisfaction* in *better Service*. And new Inland Trays giving more cubes, as shown, help sell new refrigerators.





## Hot Weather on the Way

HERE IS ONE GUIDE to air conditioning requirements throughout the United States, showing that there is a need for cooling practically everywhere. Frigidaire engineers base this map on the average number of hours the outside temperature exceeds 80° F. during each cooling season.

### Norris Appoints Andrews Head of New Department

LAWRENCE, Kan. — Norris Bros. Plumbing, Wiring & Heating Co. here has announced the appointment of John T. Andrews as manager of its new air conditioning, heating, and sheet metal department.

Andrews has been commercial manager of Kansas Public Service Co. here for the past 19 years. Active in civic and social affairs, he has served as president of the Chamber of Commerce and Rotary Club and for six years has been state campaign chairman of the American Cancer Society.

### To Air Condition Pickens Plant

PICKENS, S. C. — The Pickens Mfg. Co., headed by the Haynsworth interests of Greenville, will build an air conditioned textile plant here at a cost of more than \$1,000,000. Daniel Construction Co., Greenville, is general contractor.

### Hail Columbia! Air Conditioning Under Way

COLUMBIA, S. C. — Jack Maynard, manager, states that the Hotel Columbia will soon be completely air conditioned. Work on the project is under way.

With the completion of a new section of the hotel containing 50 air conditioned rooms, the hotel's accommodations will rise to 250 rooms. Some other parts of the hotel have previously had air conditioning.

Maynard said the new section of the hotel, built on the east side facing Gervais St., will be completed and ready for occupancy some time in July.

### Medical Center To Be Cooled

NEW ORLEANS — Work has started on the first air conditioned building in the Air-Line Park subdivision's commercial section here, A. Louis Sizeler, developer, has announced. The building will house physicians and a dentist.

### M. S. Strickler To Head New Westinghouse International Division

NEW YORK CITY — M. S. Strickler has been appointed manager of the new General Products Div. of Westinghouse Electric International Co., it was announced recently by J. D. Mickle, general sales manager.

The division has been formed to handle lighting, secondary distribution equipment, small motors, standard control and welding apparatus as well as specialty products including elevators, air conditioning, and air handling apparatus.

The new group takes over certain products formerly handled by the Consumer Products and Apparatus Products divisions, and parallels product responsibilities in Westinghouse Electric Corp., the parent company.

Strickler joined Westinghouse in 1920 as a salesman. Seven years later he was made office manager of the Westinghouse branch in Mexico City.

### A Real Cool Deal

MEMPHIS — Western Auto Supply Stores have stimulated sales of "Wizard" air conditioners by offering to supply every buyer of a unit with a free case of Coca-Cola each week for 16 weeks.

### From 4 to 100 Employees

## Steady Growth of Wholesaler, Contracting Firm Keeps Pace with Added Departments

LOUISVILLE, Ky. — Ward Refrigeration & Engineering Co., Inc., a local firm which has grown steadily since it was organized, recently celebrated its eighth anniversary.

Describing current operations of the company on the occasion, W. R. Ward, general manager and president and a veteran in the industry, pointed out that one activity is the wholesaling of General Electric air conditioning products. The firm covers the greater portion of Kentucky, southern Indiana, and a few counties in Virginia.

This department is under the management of John M. McCracken, who has been associated with major appliance and air conditioning products for many years.

In addition to this department, the company has a contract division which handles both small and large tonnage installations.

"Within the construction division," Ward explained, "we maintain a pipe fitting and refrigeration service department, and a sheet metal division which is staffed by approximately 60 to 75 sheet metal workers, foremen, and superintendent."

"The above organization totals

more than 100 employees as increased from our organization employment of approximately four people, and sales have increased to a point where this past year they approached the \$2,000,000 mark."

A. E. Pfeifer is the firm's vice president in charge of engineering. He maintains a staff of six graduate engineers.

Ward reported that the company is now expanding its staff in the Wholesale Dept. to better serve its G-E dealers. Incidentally, he noted, the firm has represented G-E in the Air Conditioning Div. ever since the business was organized.

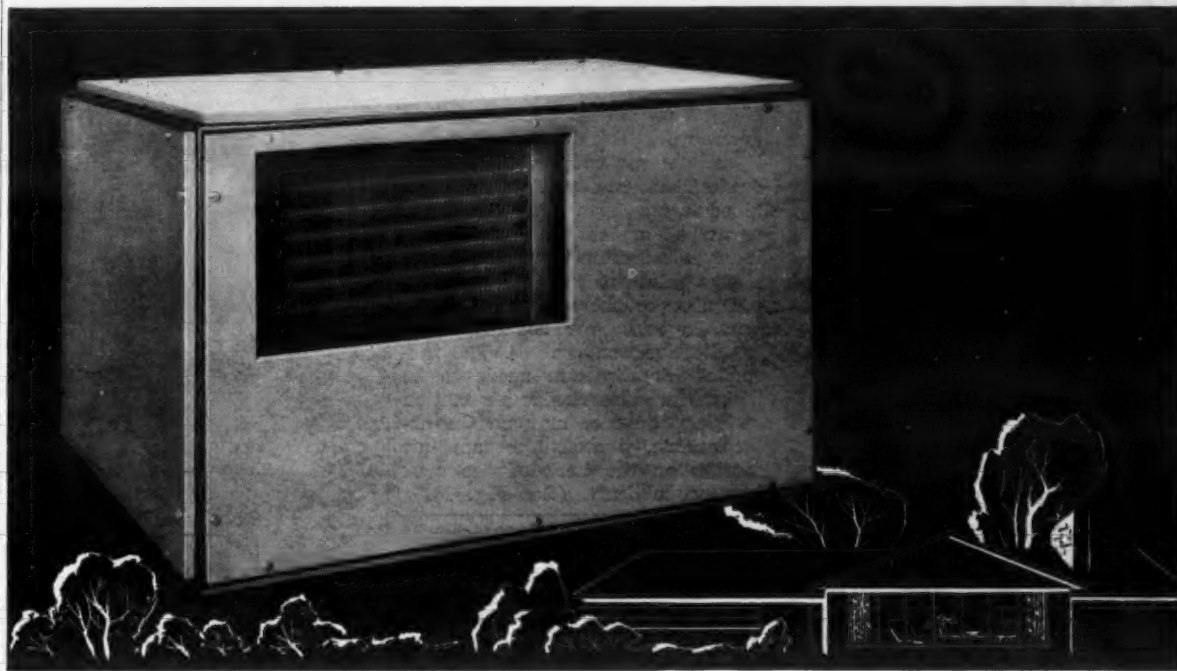
Two installations currently being made by the company were cited by Ward. One is a 600-ton installation using a Carrier centrifugal compressor powered by a G-E motor and motor control. This is at the University of Louisville.

Also, the firm is installing a 450-ton Carrier centrifugal compressor at the Commonwealth of Kentucky State Office building, Frankfort.

### JUST ASK US

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# NEW! 2 HP Westinghouse Comfort Cooler



### Priced for Volume Sales in 3 Mass Markets

Sell this small, rugged unit to shops, offices, small homes. It gives you a low price for slug-it-out competitive selling—yet it delivers all the cooling and dehumidification that stores or small homes need. Light weight and small size make it suitable for mounting anywhere. Quiet operation appeals to professional people and home owners. Put this powerful new Westinghouse price leader to work for you today. Call your nearest franchised Westinghouse distributor, or write Air Conditioning Division, Westinghouse Electric Corporation, Hyde Park, Boston 36, Mass.

### NEW AIR-COOLED CONDENSERS, TOO!

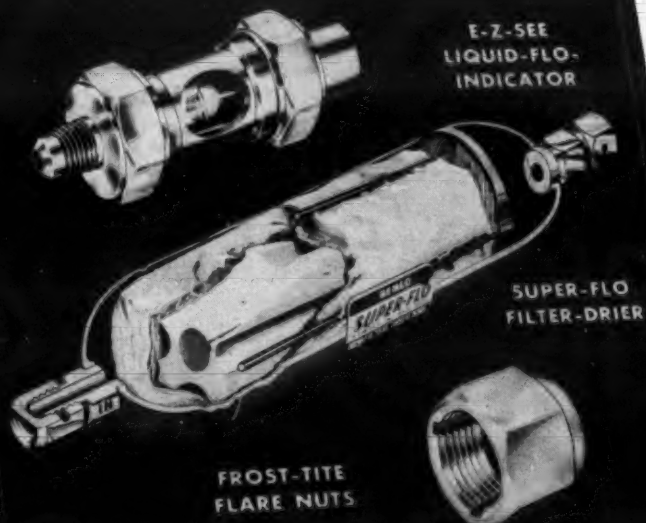
Where water is scarce or expensive, new Westinghouse AIR-cooled condensers fit the bill. Available now for air conditioning installations of 2 HP and up.

### WESTINGHOUSE AIR CONDITIONING

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J-31 67

## AIR CONDITIONING & REFRIGERATION ... ADVANCED PRODUCTS by REMCO



## HERE'S WHY ALL REMCO PRODUCTS SELL FASTER—SAVE YOU MONEY

**E-Z-SEE LIQUID-FLO-INDICATORS** with the exclusive sensitive flap, responsive to changes in flow. E-Z to SEE thru, these indicators now permit the serviceman to analyze accurately functions of the expansion valve by action or position of the flap. Positively leakproof—perfectly safe.

**SUPER-FLO FILTER-DRIERS** for both original equipment and replacement. Check SUPER-FLO's amazing low price against ordinary driers which do not have massive fiberglass depth filters, molded drying elements and spun-end copper shells. Perfectly free flow. Remco also manufactures famous Cross-Flo and Standard Duty driers.

**FROST-TITE FLARE NUTS** positively eliminate creeping, cracking or splitting of nuts in refrigeration systems by providing relief for expanding ice through patented forged frost-relief slots. Yet they cost no more than unrelieved flare nuts.



Available to the trade through wholesalers everywhere.



## Equipment Arrangement

Proper Layout of Air Distribution System and Equipment  
Vital for Successful Job, Air Force Engineers Told

Editor's Note: This is the fifth instalment in a series of articles presenting the papers given at the recent Refrigeration & Air Conditioning Engineers' Conference held by Headquarters, United States Air Force at the Pentagon in Washington, D. C.

The previous articles discussed "Load Calculations" and "Equipment Selection" for a typical synthetic flight trainer building.

Below is the first part of a two-part article devoted to "Equipment Arrangement."

By C. J. Brillinger, Director of Training and Education, York Corp.

No matter how much care, knowledge, skill, and good engineering judgment have been incorporated in what has gone ahead, and I refer to load calculations and equipment selection, there is still plenty of room to "louse up" the job in the phase that remains—planning of the air distribution and equipment arrangement.

In fact, we have a grand opportunity to make a real mess of things. The reason lies in that in air distribution we're coming face to face with the user for the first time. By the user, in this instance, I'm referring to the people that the system will serve.

The air might be ideally conditioned and cleaned, and then delivered to occupants of the space who want no part of it—that is, no part of it as such. They want only the result of that clean conditioned air as it fuses with the room air to create a condition of personal comfort. Thus, the product of the air conditioner is merely a means to an end and is not, in itself, the answer we seek.

The same pattern of reasoning can be ascribed to the other phase of this presentation—equipment arrangement. Even though ideal conditions of atmospheric comfort might be attained in the installation, we can effectively stymie acceptance of the system by infringing upon utility, appearance, or convenience aspects of the building, or when we violate personal preferences of key people.

### Comfort, Satisfaction Of Occupant Is Objective

What we are getting at is the need to adhere to good practice in layout and installation. The standards may not be well defined, but the objective is: complete comfort and satisfaction to the occupants.

The best air distribution is, therefore, that which is least conspicuous to the occupants—air movement, as we become conscious of it, stuffiness, noise, temperature variations, or air velocity fluctuations. Proper air distribution will eliminate these effects, or reduce them to a level where they cease to be objectionable.

Analyzing, as a point of reference, the two major items of complaint have an important bearing upon the circumstances under which an air motion becomes a draft. These three factors are combined in the term "Effective Temperature" which we use as an index of comfort experienced in a given atmosphere.

Drafts, or the reverse of stuffiness, however, are not due alone to effective temperature. The factor of air direction needs to be added, for a particular air motion striking the face may not be objectionable, whereas the same air motion on the back of the neck becomes a draft. (See Fig. 1).

Total air circulation within the conditioned area is closely related to air distribution and vital to successful operation of the system.

### Six Changes Per Hour Is Normal Rate

Total air circulation in the conditioned area is an important factor in air distribution and successful operation. It depends upon: (a) the internal sensible load, and (b) the diffusion temperature. An average comfort installation normally uses about a 10-minute air change, or about six air changes per hour.

The key to proper distribution of air is primarily that of effecting a complete mixing of the primary and room air above the breathing zone. Air emerging from an outlet into a room immediately begins to entrain room air. This process of induction, as it is known, increases the volume of the mixture and decreases its velocity.

The rate of induction for a given shape outlet is a function of the perimeter of the primary air stream, since it depends upon contact area of primary and room air. However, the total amount of induction is independent of the rate, depending entirely upon out-

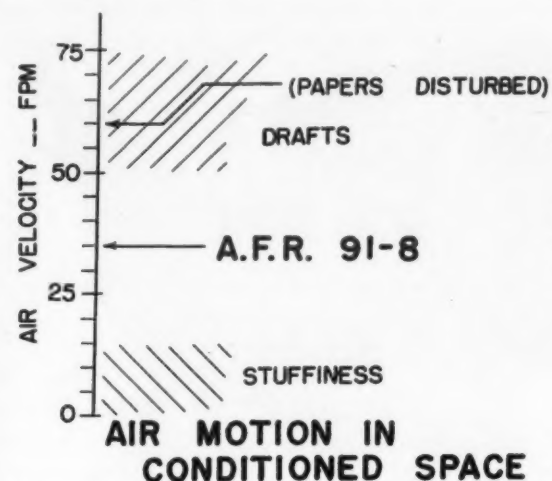


FIG. 1 shows the range of air velocities recommended to avoid both drafts and stuffiness.

let velocity of the primary air.

One of the major determinants of the performance of an air supply outlet is its "effective area." It is the net area of the outlet through which air can pass (Fig. 2). For given lines and types of outlets, the core area (daylight area), when multiplied by a specified fractional constant, gives effective area. The variation of effective area, and hence outlet performance, may be accomplished by mechanically adjusted vanes.

The "throw" of an air stream introduced into a room is another item of concern in arranging for proper distribution. It is the distance the stream travels beyond the outlet to the point where air velocity reduces to 50 f.p.m. It, too, is a function of outlet velocity,

along with the angle of deflection of the issuing air stream from the outlet, and to a lesser extent, the "aspect" ratio of the outlet (relation of length to width). Thus, the amount of throw varies inversely with the rate of induction.

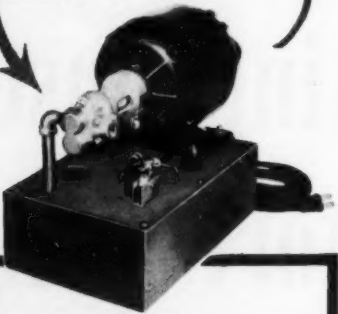
From this we see that for a given outlet velocity and air quantity discharged, a circular outlet will provide the minimum rate of induction and the maximum throw, a square outlet next, and the minimum throw is developed by an outlet of high aspect ratio (long and narrow).

The induction effect results in the "fanning out" of an issuing air stream, which effect is known as the "spread." A vaned outlet discharging air uniformly forward

(Continued on next page)

### New HIGH-PRESSURE CONDENSATE DISPOSAL UNIT

designed to eliminate pumping water to sewer drain-line



**\$7450** complete—to contractors F.O.B. Dallas\*

- 1/2 H.P. Motor
- Hot-dipped galvanized tank

**EXCLUSIVE FEATURE:** condensate accumulating in tank is pumped against 100 lbs. pressure of condenser water-line through check valve directly in condenser water-line at air conditioning unit, thence to cooling tower.

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**DEPENDABOOK**  
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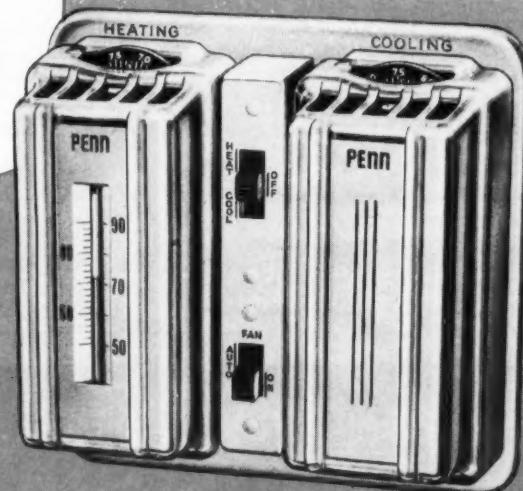
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**CONTROLS**



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lations... their accuracy and dependability on the job are time-tested. That's why manufacturers of packaged air-conditioning equipment bring their control problems to Penn for solution!

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## Factors In Air Distribution--

(Continued from preceding page)

will spread the air, both in horizontal and vertical planes, about 14°, or about 1 ft. in each 8 ft. of travel. This minimum spread can be increased by the use of progressively diverging guide vanes in the face of the outlet. Increasing the divergence of the vanes, however, decreases free outlet area, and tends to reduce the air quantity.

### Ceiling Outlet Avoids Drafts

The extreme case of angular fanning out of the air to reduce its throw is exemplified in the ceiling type outlet. Here the air is distributed radially through 360°, providing a very rapid rate of induction and a short throw. It is thus possible to distribute air in larger quantities at greater temperature differences and still avoid drafts.

The vertical distance that the lower edge of the air stream drops before the end of the blow (50 f.p.m.) is important, since the air stream should not reach the occupied zone before this slowing-down has taken place. This "drop" or rise, is influenced by the natural 7° spread downward and the gravity effect of the difference in density between the primary and room air resulting from temperature difference.

### Air Motion Must Be Below Draft Level

An important factor in proper air distribution is to achieve air motion in the occupied zone which is below the draft level, or about 35 f.p.m. Thus, outlet performance and space characteristics need to be related to the selected outlet velocity. Air issuing from a side wall outlet sets up a movement of air in the occupied zone equal in quantity to the total air in the outlet stream at the end of its throw, and opposite in direction or flowing toward the wall containing the outlet.

Finally, outlet velocities need to conform to recommended limits to allow quiet operation. Tables listing such limits for variously used spaces are readily available. Suitable resulting velocities are dependent upon the selection of proper capacity outlets for the application.

Thus far we have considered some of the factors that affect air distribution within a conditioned space. They are:

1. Diffusion temperature.
2. Throw.
3. Spread.
4. Drop.
5. Room air motion.
6. Noise.
7. Capacity.

Each of these provides some guide-posts for the design of a

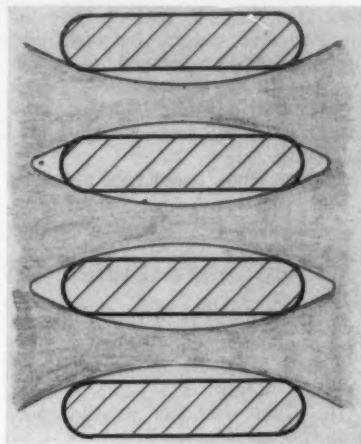


FIG. 2 indicates the "effective area" of an air outlet.

satisfactory distribution system. Our attention now, quite naturally passes to supply air outlets, of which there are two main types—side wall and ceiling.

There is no general rule as to when one type or the other should be used, except that for distributing large quantities of air into comparatively small spaces or short throws, ceiling types are preferred. Properly designed jobs, using either type, will give satisfactory results.

### Factors To Consider In Selection, Location

The specific selection and location of outlets will need to consider (a) building construction, (b) appearance or styling factors, (c)



the concentration of heat loads, and (d) the performance of the outlet in terms of the air distribution factors that we have discussed.

For example, consider throw. Generally speaking, personal judgment of the designer plays a large part, but it is more or less accepted practice to select the throw of an air stream directed toward an exposed wall at 75 to 100% of the distance.

Where possible, it is considered good practice to keep wall outlets 12 in. below the ceiling to minimize dirt deposits or streaking of the ceiling in the path of the air stream. This streaking is caused mainly by the dirt contained in the induced air drawn into the stream.

Summarizing, the selection and location of supply air outlets controls the room air motion, which we depend upon to create and maintain a condition of comfort.

### Return Air Intake Location Not So Important

On the contrary, the location of return air intake is not nearly so important. There are but three major precautions:

1. Avoid locations that permit supply air to short circuit before absorbing its share of room heat.
2. Avoid locations too close to occupants where resulting air velocities may exceed comfort limits.
3. Adhere to air velocities as recommended in A.F.R. 91-8.

As we prepare to pass from air distribution in the conditioned space, we must pause to consider the importance of proper approach of the air stream in the duct system to the outlet. The approaching air stream must be of uniform velocity over the entire face of the outlet. Directive guide vanes must be used to attain this objective as required. Dampers, too, need to be kept a good distance behind the air outlet.

### Straight Duct Should Precede Outlet Point

Give us preferably some straight sections of ductwork immediately ahead of the outlets to straighten the air.

In general, the duct system is most important, and it often costs 20% to 25% of the complete system. Its design affects over-all system efficiency and fan power cost. You can either mar or enhance the architectural beauty of a building in laying out the duct system which also must comply with codes and fire regulations.

To balance the many factors involved, including the degree of refinement vs. application, and the economics of material and space utilization, considerable ingenuity may be required. Therefore, the engineer must know (a) theory of air flow, (b) duct sizing, and (c) good installation practices.

In discussing duct systems you will encounter the terms "static pressure," "velocity pressure," and "total pressure." Static pressure is that pressure exerted by the air against the sides of the duct. It is measured in inches of water. Velocity pressure refers to the forward movement of air through the duct and is measured in feet per minute. Total pressure is the combined static and velocity pressure.

### Other Considerations Regarding Ducts

Other considerations in duct design include "frictional resistance" and "dynamic resistance." Frictional resistance refers to the resistance to air movement through the duct created by the friction of the duct walls. Dynamic resistance results from changes in velocity and direction of the air stream through the ducts and is measured in terms of equivalent lengths of straight duct.

We refer here to such things as turns in the duct and expansion and contraction sections where the duct changes to larger or smaller size, respectively.

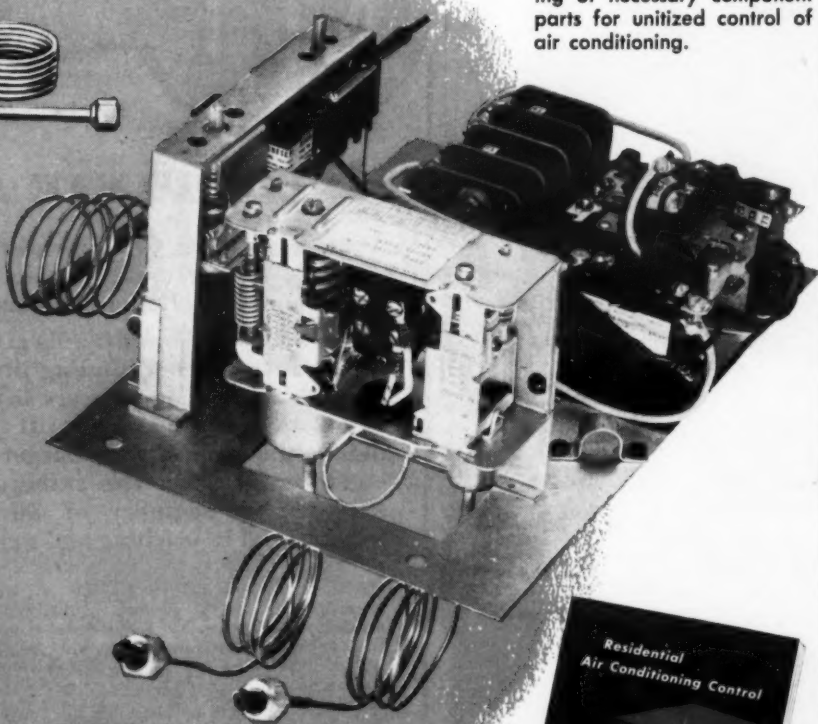
Expansion sections should be gradual and shouldn't exceed the ratio of 1 in 7. Contraction sections, however, offer little or no problem in this regard.

In duct design we must also consider the resistance to air flow presented by coils, dampers, etc.

(Continued on next page)

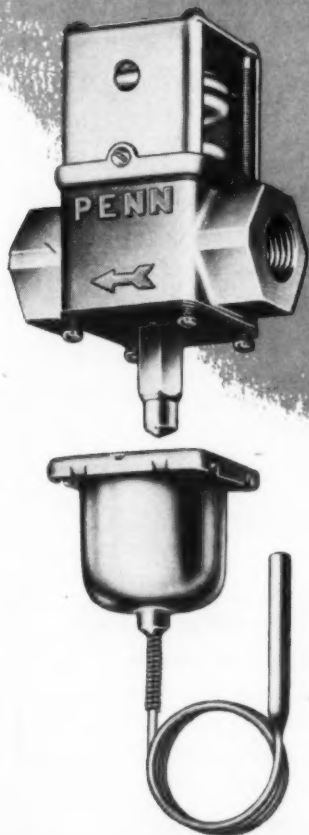


Type 271 AP12AP with lockout on both high and low pressure is specifically designed for hermetic units in packaged air conditioning.



Typical control panel consisting of necessary component parts for unitized control of air conditioning.

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3 to 4 Tons Cooling  
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## How Ducts Are Designed--

(Continued from preceding page)  
Resistance data on these items is provided by the manufacturer.

### Total Resistance Defined

Total resistance of a system is the sum of frictional resistance and dynamic resistance plus the resistance offered by coils, filters, dampers, etc.

It is good practice to keep the total resistance at a limit of 1.50 in. to 1.75 in. for comfort cooling applications, taking into consideration such factors as noise and vibration, economics, duct size, fan motors, etc. For industrial applications, higher noise and vibration levels may be acceptable, however.

### Duct System Design Procedure

The general procedure in designing a duct system first calls for a study of the building plan and making a rough sketch of what seems to be the most convenient duct system. A simple layout is usually the best. At this stage you should note the obstructions that need to be avoided.

Then select the air outlet locations and return air intake locations for good air distribution. The building should be zoned and air quantities proportioned for each zone.

Select each outlet, basing the selection on volume of air, outlet

velocity, temperature difference, throw, and spread.

Next calculate the sizes of main and branch ducts.

Then calculate the losses for the duct offering the greatest resistance to air flow plus other resistances such as coils, filters, dampers, heaters, etc. This combined figure is the system static pressure for purposes of calculation.

### 3 Methods for Sizing Ducts

Sizing of duct systems can be done by one of three methods: the velocity method, static regain, or equal friction. The velocity method is okay for the simple job that has to be done in a hurry. The static regain method is a rather cumbersome way of sizing ducts, but it may be okay for high velocity systems. Perhaps the most popular is the equal friction method whereby you design for equal friction per foot of length.

General considerations in designing duct systems may be summarized as follows:

1. Convey air as directly as possible.
2. Provide a smooth duct surface for minimum resistance and noise. Avoid rough edges.
3. The higher the velocity, the greater will be the noise. This will result when a smaller duct is used for the same quantity of air.
4. Rectangular ducts should be as nearly square as conditions al-

low. The "aspect ratio," that is, the ratio of height to width of ducts, shouldn't exceed a maximum of 10 to 1.

5. Install adequate splitters and dampers in all sections to allow balancing.

6. Use elbows and tees of large throat radius— $1\frac{1}{2}$  diameters. When you must use shorter turns, install turning vanes.

7. Duct transformations should slope 1 in 7.

8. Obstructions in ducts should be provided with casements.

9. All laps should be in direction of air flow.

10. Duct branches should slice into the air stream.

11. Provide adequate access openings.

12. Use canvas or asbestos connections at fan.

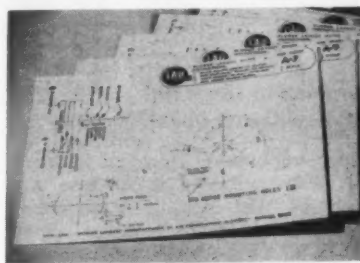
13. Apply insulation where needed to prevent excessive heat loss and condensation.

(To Be Continued)

### Church Educational Unit To Be Air Conditioned

COLUMBIA, S. C.—Construction of a \$200,000 air conditioned educational building by the Shandon Baptist church has been approved by the congregation.

The project, which will provide facilities for about 700 additional people in the Sunday school, will involve some alterations of the present church building, according to L. P. Rabon, chairman of the board of deacons.



### Templates Aid Drawings For Blower Applications

DAYTON—To aid engineers in designing warm air heating furnaces and air conditioning units that require power blowers, the Lau Blower Co. here has developed a series of five heavy-duty plastic templates.

Each of the transparent  $8\frac{1}{2}$  by 11-in. pieces is imprinted and punched with the intricate curves and mounting brackets necessary for accurate drafting and placement of blowers in a unit. When necessary, the templates can be reversed to insure proper positioning of blowers.

Each template is produced for one particular blower model. In one quarter scale, the templates are small enough to be stored and handled easily yet large enough to insure perfect draftsmanship, the company said.

The templates are presented in a heavy-duty folder that contains complete directions for ascertaining the proper blower for the right amount of air delivery and a breakdown of the individual parts that compose a blower.

The company estimates that two to five hours of drafting time can be saved with each template. It

was noted that free hand drafting of blowers often reduces accuracy of placement and causes errors in final engineering.

Due to the specialized nature of the templates, they will be personally presented to interested firms only by field representatives of the company, the company said.

### Unit Air Conditioners New Ohio Distributor

CLEVELAND—Unit Air Conditioners, Inc. has announced its recent establishment as a wholesale supplier of air conditioning equipment to dealers in Cleveland and 39 counties of northern Ohio.

Officers of the new firm are H. R. Weiner, president; Raymond Feldman, secretary; and Perry E. Davis, sales manager.

Unit Air Conditioners is a franchised distributor of Westinghouse packaged air conditioning equipment for both residential and commercial use, which ranges in size from 2 through 15 hp. A domestic-size "Precipitron" and the Westinghouse heat pump are among products being handled.

The concern is one of many being set up throughout the country to warehouse Westinghouse equipment for the convenience of franchised dealers in the counties surrounding several major cities, according to Davis.

The company is also stocking window units and console-type air conditioners from  $\frac{1}{3}$  to  $1\frac{1}{2}$  hp. manufactured by Remington Corp., and cooling towers made by Acme Industries, Inc. which can be used in conjunction with package air conditioners.

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MANUAL NO. K-3—General discussion of heating systems; selection of heating coils (air friction, condensation); description and operation of evaporative condensers; water cooling towers; automatic controls; piping refrigerant, water, and steam; and insulation problems.

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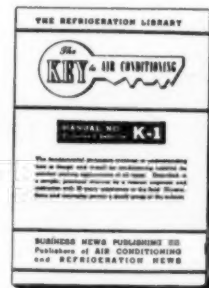
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## Airtemp Chart Helps Salesmen Select Right Size Room Unit

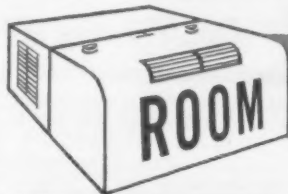
DAYTON—A room air conditioner Selector Guide consisting of four differently-calculated charts tailored to conditions in the four major climatic regions of the country has been published by Chrysler Airtemp for retail salesmen.

For instance, the city of Minneapolis represents the cool region, while New York City represents the temperate. Phoenix is representative of the hot, dry climate, and Miami typical of the hot, humid areas in the country.

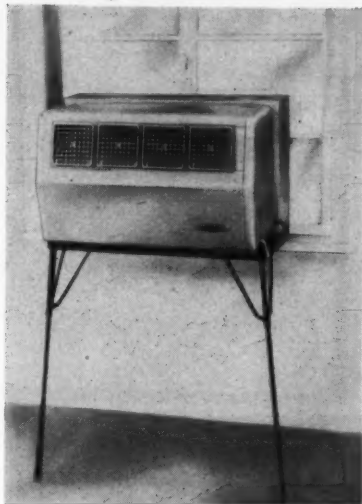
"A salesman anywhere in the country will, without undergoing extensive training, be able to sell room air conditioners properly," stated J. F. Knoff, vice president in charge of Airtemp sales.

"His Selector Guide is an accurate and swift method of determining how effectively his prospect's room will be air conditioned before the air conditioner is installed.

"He will be able to present anticipated results to the customer with more confidence. And," Knoff said, "the Selector Guide eliminates guesswork and assures the customer of a properly-sized air conditioner to meet design conditions."



## AIR CONDITIONERS



### Unarco Offers Thermostat For Mobile Conditioner

CHICAGO—Thermostats have been made available for Union Asbestos and Rubber Co.'s new mobile air conditioners, Chester S. Stackpole, general sales manager of Unarco's heating and cooling division, said recently.

In the future, he added, mobile air conditioners may be ordered from the factory with thermostats already installed.

In addition, he pointed out, thermostats in kit form, which will enable dealers to make their own installation, have been made available.

### Quiet Kool Announces New Casement Window Kit

NEWARK, N. J.—E. M. Peters, Quiet Kool vice president, has announced that the company's "Casement Window Kit" can now be used in conjunction with the Quiet Kool "Compact" room air conditioner.

The Casement Window Kit consists of a base and legs in attractively-finished wrought iron that would harmonize with any interior, according to the company. A steel rear cabinet, aluminum drip pan, adjustment dowels, and fastening hardware complete the kit.

"The Quiet Kool Compact air conditioner does not project outside the casement window," it was pointed out. "Therefore it would not be necessary to cut any of the steel mullions or deface the casement steel.

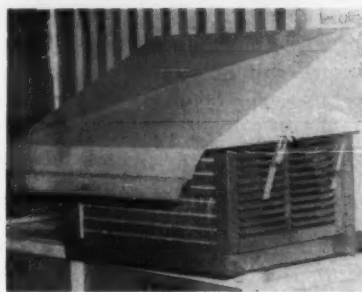
"The removal and cutting of glass and in some cases, the removal of sash cranks or locking devices is all that is necessary."

### U. S. Embassy In Karachi Gets Admiral Room Units

CHICAGO—James R. Oberly, president of Admiral International Corp., reported recently that 25 Admiral room air conditioners have started an 8,000-mile journey to the American Embassy in Karachi, Pakistan.

The 3/4-ton standard, 220-volt, 50-cycle units were ordered to meet the requirements of the increased American personnel in Karachi under the technical and military assistance program to Pakistan, Oberly said.

## 'Weather-Ban' Window Air Conditioner Cover Protects Unit Against Rain, Snow, and Heat



METAL protective covering will fit most window units.

NEW BRUNSWICK, N. J.—The "Weather-Ban," a new metal protective covering for window air conditioning units, is now being manufactured by Weather-Ban Products, Inc. here.

Designed to fit most models of window air conditioners, the "Weather-Ban" is constructed of 26-gauge galvaneel, and comes in four colors of baked hammertone finish, said to be extremely resistant to weathering effects, thus reducing possible corrosion and deterioration of outer casing.

Colors were chosen to blend with units and most outside home decoration so that addition of the cover enhances outside appearance of the installed window unit. Sizes for all units can be obtained.

In addition to the protective

function of the cover, which is pitched to shed rain, snow, sleet, etc. quickly, the device is said to greatly decrease effects of sun on the outer casing of the window air conditioner through use of Fiberglass insulation installed under main portion of cover. Reduction of heat on the outside of the conditioner is said to decrease heat normally transmitted to motor and compressor, resulting in increased efficiency and lowering of running time of window air conditioners equipped with the new cover.

Tests are currently being conducted to establish exact data on increased operating efficiencies through use of the cover, according to Don P. Mondy, general manager of the company.

Installation of the cover is simple, the company claims, and can be accomplished in less than 10 minutes without use of tools. Installation consists of two clamps which fasten to either side louvers or bottom of conditioner. In addition, tension springs are fastened to the window side of the unit.

The new cover is patented with additional patents pending, according to the company.

Weight of the unit is 10 1/2 lbs.; shipping weight 15 lbs. Suggested retail price is \$19.95.

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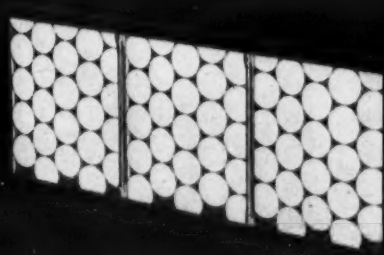
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MAY 17, 1954

## Perhaps It's Time For Power Companies To Retail Again

SHOULD public utilities return on a big scale to their former practice of selling "white goods" at retail? And should they place more emphasis on "pioneering" items like air conditioners?

Strong feeling in favor of such a move was voiced unofficially by utility people, and specifically by refrigeration representatives, at the 20th annual sales conference of Edison Electric Institute in Chicago a short time ago.

By selling these load-builders on a sound basis, it was felt, utilities could demonstrate to both captive and independent dealers how to move such products profitably in today's confused market.

**Fear was expressed** that if a substantial number of dealers don't adopt, or return to, specialty selling principles, the long-term appliance market will be damaged severely by the inroads of discount houses.

To the point of possible boredom, editorials in the NEWS repeatedly have reminded subscribers that genuine salesmen and honest selling have become too rare in our field. Causes for this situation are several; and as a consequence, perhaps there is no simple solution.

**Hard facts:** for more than a decade—from 1942 through 1953—the art of specialty selling wasn't essential for retail success.

There was little to sell during World War II. And pent-up demand made the years immediately after the war a period of order-taking, allocation, and fighting off eager buyers.

When it seemed, early in 1950, that it might be necessary to start selling after all those lush years, the Korean War brought shortage-fearing customers rushing into stores.

Little wonder that, when pressing demand began to slacken off, a great many dealers were unprepared—and still are.

They'll Do It Every Time . . . . . Jimmy Hatlo



Another important aspect to this problem: current crop of young men today don't seem to go for the challenge of personal selling. At least a dozen reasons can be assigned to this deplorable situation—reasons too complex to be analyzed in a short editorial. However, we must face up to it: the notion of achieving financial success and personal recognition through the art of personal selling does not seem to have the appeal it once did, and should still have.

**With fewer men interested in selling,** and not enough dealers in a position to do much about that situation, thousands of retailers are reacting the easy way:

They simply cut prices.

Inasmuch as a prospect seldom is told by dealers or their salesmen why she should buy a particular make of refrigerator or freezer—and more important (from the dealer's point of view) why she should buy it at a particular store—it's only human for the prospect to shop around for the lowest price.

The fact that the lowest price may not be the lowest cost to a family—over a period of years—is a matter about which the average shopper isn't well-informed.

**Why? Lack of salesmanship.** The boss is in Florida, or on a cruise, and the clerks don't care if school keeps or not. That's why discount houses now threaten the present appliance distribution pattern.

Retail sales by public utilities might well be an interesting answer to this problem. Traditionally, most utilities push new products at a pioneering stage. When the device seems well on its way toward public acceptance, the utility bows out, leaving the field open to independent dealers exclusively.

Relatively few refrigeration products today need the pioneering assistance of utilities. However, the power companies, perhaps more readily than anyone else, might help lead honest dealers out of the morass of indiscriminate price-cutting (and user dissatisfaction!) back to the safe ground of profitable specialty selling. And in satisfactory volume.



AlSCO Sales (Ont.) Ltd.  
Hamilton, Ont., Can.

Editor:

I have just re-read "The Marshal's Baton." This makes approximately the fifth reading and the fifth copy of this publication that I have purchased. Two weeks ago I stretched out on the sands of Miami Beach and re-read this book from cover to cover. I was able to be in the enviable position due to the knowledge gained from the first reading and the success I enjoyed as a result of using "The Marshal's Baton" as a guide to business operation and sales management in general over the past few years.

I wish that it were in my power to personally thank each contributor. I cannot speak too highly of the benefits derived and would heartily recommend that this publication be made the Gideon of specialty sales management.

L. R. McMULLEN

General Electric Co.  
1405 Locust St.,  
Philadelphia 2, Pa.

Editor:

I have sent the enclosed letter to each of my air conditioning distributors.

Inasmuch as I have said nice things about your paper I think

it is only right that you know that we hold your sheet in such high regard.

R. J. WALSH

This letter sent to all franchised cooling accounts.

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R. J. WALSH



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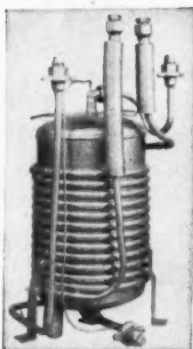
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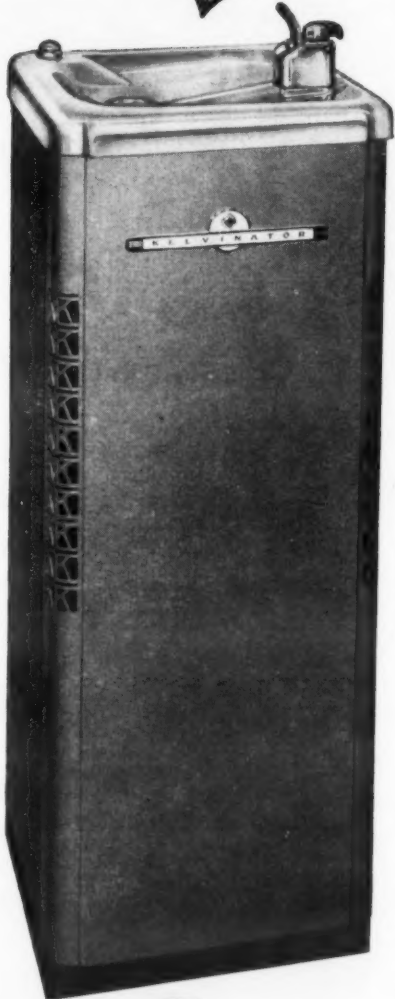
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Although the form does include the "I for installation" notation, it is not used for installation work at the present time. The forms and methods described previously are used instead.

(Concluded on next page)

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# Most Home Systems Run at 76°, Study Shows; More Data Given on Air vs. Water Question

WASHINGTON, D. C.—“We can pretty definitely state that Mrs. America sets her cooling thermostat at 76° regardless of the industry's hypothetical design conditions of 80° and 50% humidity.

“What's more, the same equipment which is designed for an 80° temperature seems to work just as effectively in maintaining the 76° setting,” believes Alwin B. Newton, chief design engineer of the Coleman Co., Inc.

Discussing “Home Air Conditioning Today” before the Washington chapter of the American Society of Heating & Ventilating Engineers, Newton told the group:

“For years we have designed and sized our residential air conditioning installations pretty much as we do commercial installations. As an industry we have recommended and based our heat gain calculations on inside temperature of 80° and inside relative humidity of 50%. Yet, many of us who have lived in air conditioned homes for long periods of time, possibly in several locations, find a tendency to use a common lower temperature, namely 76°.

## 67 Homes Averaged Approximately 76°

“Some time ago I had occasion to survey a total of 67 installations in residences on a random basis when the owners did not know a survey of their premises was to be made. These homes were located in four widely separated cities but there were only two of them out of the entire 67 which did not have a thermostat setting of approximately 76°.

“For some time after I made this survey I was more or less puzzled by such unanimity in a departure from what the industry believed satisfactory. Last June at Denver Prof. M. K. Fahnestock of the University of Illinois presented a paper which reported his findings in testing people's comfort reactions to various temperature and humidity combinations. Surprisingly enough he showed that at 76° people were relatively insensitive to variations in humidity, whereas either above or below 76° variation in humidity was an important factor.

“Some further study of the comfort chart put out by ASHVE does, I think, illustrate very well why people prefer a 76° setting,” Newton said.

“This is so important to our industry, since it provides a means of making a larger percentage of our customers completely comfortable, that I have prepared on the comfort chart shown in Fig. 1 some additional diagrams which show clearly what we should expect.

## Humidity Levels Between 40% and 80% Used

“It is nearly impossible for any conventional air conditioning equipment to produce relative humidity below 40% in most areas of the country; likewise a humidity level above 80% even if comfortable would be undesirable from the point of view of producing mold and a feeling of dampness. Therefore, in Fig. 1 we will confine ourselves to a minimum of 40% and a maximum of 80% humidity, wherever comfortable.

“It should be noted first that 80° and 50% relative humidity, point A, Fig. 1, indicates 70% of subjects feeling comfortable and I have therefore assumed that if 80° and 50% is acceptable so will any other condition that will keep 70% or more of the people comfortable. The area involved is shown by the single cross-hatching at D,” he explained.

“From the figure we can see that with a thermostat setting of 80° the range of obtainable condi-

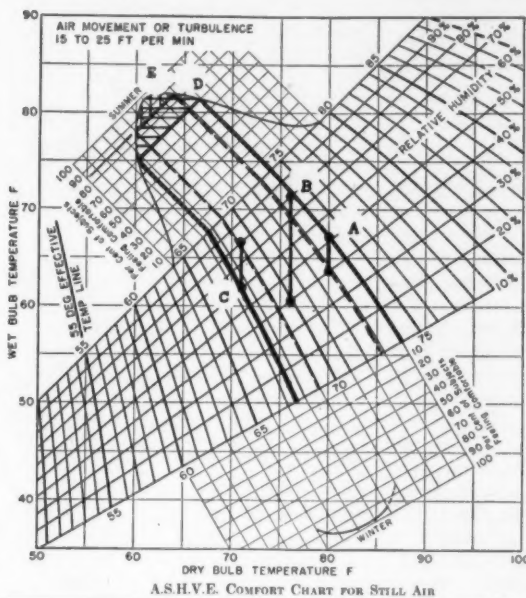


FIG. 1 compares results in terms of comfort of various thermostat settings of a residential air conditioning system

tions which will produce comfort is extremely limited, being only between 40% and 50%. Furthermore, every time the equipment stops when the thermostat becomes satisfied the humidity must rise above 50% and the temperature above 80° which immediately means that fewer than 70% of people can be kept comfortable. Yet these are the conditions for which the industry designs!

## What Happens at Low Thermostat Setting?

“Now let us see what happens at a very low thermostat setting such as 71°. This condition is shown at C on Fig. 1. We immediately notice that any humidity below 60% will cause fewer than 70% of the people to be comfortable. Therefore, here again we have a very short range of comfort between 60% and 80% humidity.

“This low setting does have one possible advantage in that when the equipment is first stopped after operation, for a time at least, it is possible for a greater percentage of people to be comfortable. I don't think we want people more comfortable when our equipment stops than when it runs,” he emphasized.

“Turning to line D, which represents a 76° control point, the entire length of the line between 40% and 80% humidity indicates a high degree of comfort. From observation of many jobs it appears that a relative humidity of 50% at 76° is a fair average of what is attained. At this condition almost 100% of the people will be comfortable and if the equipment stops and the humidity goes up even as much as 15% or 20% we are still in an area where more than 85% of the people are comfortable.

## Helping People Get Maximum Benefit

“From this I think it is evident why people have found out for themselves when left alone with an air conditioning system in their homes that 76° is about the right or optimum control temperature.

“As an industry we should certainly be talking the optimum instead of a condition where, whenever the machine stops, discomfort for more people must result. Let's make it easy for people to start off the right way and get the maximum benefit from our equipment.

“This situation has some real import for control manufacturers since eventually we will almost certainly have automatic change-over from heating to cooling. Most people now set their heating thermostat at as high as 74° or 75° and this means that there is very little difference between the control point normally used in heating and that which produces

the optimum conditions in cooling,” Newton said.

“Until 1953 a variety of methods of calculating heat gain for sizing equipment in residences was in use, most of them being based one way or another on our ASHVE Guide. The Guide gave us excellent information on calculating

instantaneous loads but did not indicate what allowance could be made for the heat lag effect in the residence. Since residences receive their heat gain preponderantly from the weather and to a lesser extent from inside sources this meant that many residential installations were actually over-size.

## Efforts Pooled for Manual 11

“In 1953 The National Warm Air Heating & Air Conditioning Association recognized this problem and published a tentative Manual 11 covering residential air conditioning. At the same time, the Air Conditioning & Refrigerating Institute right here in Washington was doing work on a residential air conditioning standard which also included a means for calculating residential heat gain. Now both societies have gotten together, pooled their experience with the result that the new NWAHA Manual 11 and the ARI standard give similar results as to heat gain in any particular residence. Both require smaller size equipment than instantaneous heat gain methods and both are a great improvement.

“Sizing is particularly important

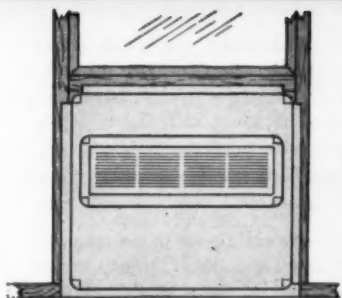
since it is directly related to cost. If a dealer uses a method of calculating heat gain which indicates a heat gain requiring a 5-hp. unit when actually only a 3-hp. unit is actually needed to do the job, it is that much more difficult to make a sale and perhaps we have lost a potential user of air conditioning.

“The availability of these industry-wide standard methods of heat gain calculation has lessened the confusion we previously tended to create by having a different calculation method in use by every manufacturer. The more we use the NWAHA and the ARI methods, the easier we make it for government agencies such as FHA and VA to have confidence in our proposals,” suggested Newton.

“Home air conditioning equipment has become more specialized during the last year or two. At the same time it has become more versatile in application both with respect to newly-built homes and existing homes. We are doing things today which a few years ago we would have thought impossible.

“For example, much of the equipment available today is in

(Continued on next page)



## Easy to Install

Only 28" high, the Type 910 can be installed under a window or in a solid wall. It is 29 1/2" wide — designed to fit between two standard stud spaces without carpentry work. Roughing-in casing facilitates installation.

## Here's a "natural" to help you cash in on today's big cooling market, and particularly:

1. WHERE YOUR PROSPECT'S BUDGET IS LIMITED.
2. NO DUCT SYSTEM IS AVAILABLE.
3. WATER IS SCARCE OR TOO COSTLY.

The Mueller Climatrol Type 910 is low in cost. It is easy to install. It fits between two standard studs. It's air-cooled, so no water or plumbing connections are necessary.

When installed, the Type 910 projects into the room less than ten inches — doesn't disturb normal furniture arrangement. Handsome, streamlined casing can be repainted to fit any decorating scheme.

There's no unsightly projection outside the home, either. Exterior outlet and inlet louvers are neat, rainproof, and furnished with insect screen.

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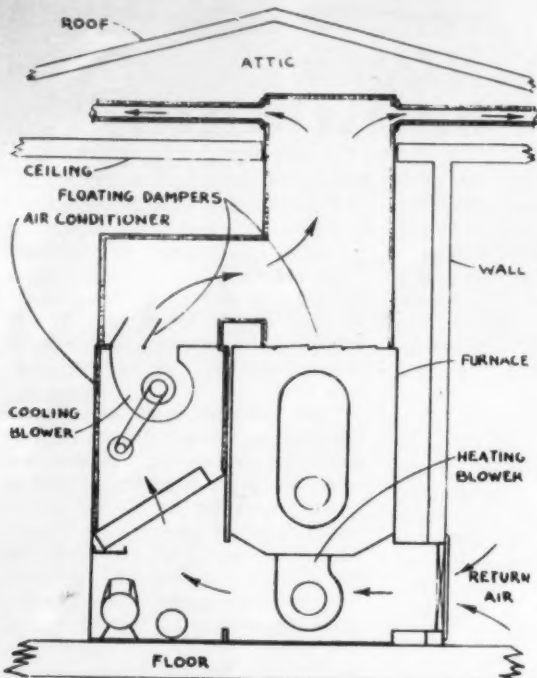


FIG. 2 shows schematically a typical self-contained year-round residential system.

### Self-Contained Year-Round System --

(Continued from preceding page) two parts, one to go inside the house associated with the furnace and the other to go outdoors, and refrigerant piping is completed in the field between these two units. The success of such equipment has been so great that several new systems are now on the market using the two-piece systems.

"Self-contained equipment is still employed on many jobs and a typical system using it is shown schematically in Fig. 2. The air conditioner is located beside the furnace and receives its air through the furnace blower chamber. The air conditioner has its own blower, coil, condensate collector, compressor, and water-cooled condenser.

"When the air conditioner blower is in operation, return air enters through the filter of the furnace, passes through into the air conditioner, over the coil, and is discharged into an air delivery plenum from which the delivery pipes are run out to the various rooms. Floating dampers over the furnace prevent recirculation of air.

### Insulation To Prevent Condensation

"All parts of the air conditioner in contact with cooled air and the plenum and duct system are normally insulated to prevent condensation, insulation being particularly necessary when the equipment is located in an unconditioned space or the ducts run through an unconditioned space. Placing the insulation inside the air conditioner and inside the plenum, as shown, eliminates the problem of a vapor barrier since the plenum and air conditioner metal sides themselves form the vapor barrier," Newton said.

"However, particularly with any of the small-pipe systems, the insulation should be placed on the outside of the delivery pipes. The manner in which the insulation is applied is clearly shown in the figure.

"In our own 'Blend-Air' system we deliver air into the plenum at a maximum pressure of .45 to .5 in. of water and distribute it through blenders or internal aspirators in each room. This

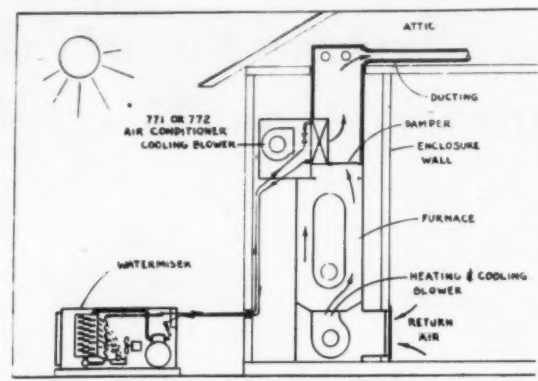
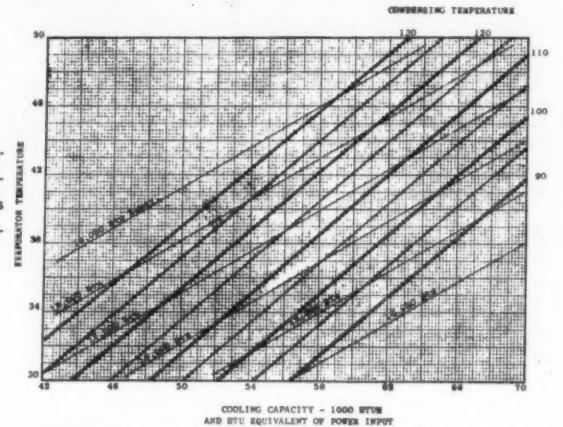


FIG. 3 indicates how part of the cooling equipment can be placed outdoors.

FIG. 4 shows cooling capacity of a 5-hp. compressor under various evaporator and condensing temperatures.



action requires the circulation of as little as 300 c.f.m. per ton of refrigeration through the air conditioner and the duct system but in each room gives the effect of between 500 and 600 c.f.m. per ton plus the additional advantages of having the effect of a return in each room. This is particularly important in the current trend to small single central return systems.

### Common Arrangement When Part of Equipment Is Outside

"I have already mentioned the trend toward placing some of the equipment outdoors and doing refrigerating piping in the field. Fig. 3 shows schematically one of the common arrangements of equipment for this type of use. In this case we show a booster unit which is normally mounted on top of the furnace in such a way that the furnace can deliver its air directly into the distribution plenum or by placing the damper in the position shown in Fig. 3 the air can be made to pass through the booster fan, through the coil, and into the distribution plenum.

"Note that in this case both the furnace blower and the air conditioner blower are used during the cooling season. By this means an increased air quantity can be circulated when cooling, even though the air still passes through the furnace and furnace blower.

"Outside the house an evaporative condensing unit is located and the refrigerant piping is completed on the job between this external 'Water-Miser' and the unit on top of the furnace. In the 'Water-Miser,' air is moved through the unit by a fan and water is sprayed over the coil by a turbulator located in the water pan in which a constant water level is maintained by a float valve assembly," he explained.

### System Responds To Wet-Bulb Temperature of Air

"This type of air-cooled condenser responds to the wet-bulb temperature of the air and we are able to obtain very much lower condensing temperatures than with other types of air cooling," Newton declared.

"A remote air-cooled condensing unit is usually located in a protected location with free access to outside air, perhaps outside the house, and refrigerant piping is installed between it and the air conditioner mounted at the furnace location. Air-cooled condensing units for this purpose must be designed for high back-pressure operation and for operation in the actual outside temperatures experienced in a given locality.

"For example, an air-cooled

condensing unit which will operate economically and satisfactorily in places like Detroit or Cincinnati where sustained temperatures above 95° are improbable will not usually operate satisfactorily in places like Oklahoma City, Dallas, or San Antonio where sustained temperatures between 105° and 110° are common.

### Utilities Are Finding Ways To Meet Power Demand

"In previous talks I have mentioned the problems faced by electric utilities in supplying power to such a rapidly growing and large customer as the air conditioning industry. Generally these problems either are being met, or methods of meeting them are being found by the utilities.

"But water usage by air conditioners is the growing problem in areas where water is scarce, where water mains and pumping stations are already being used at full capacity, or where sewers are barely adequate before the addition of air conditioning. Our industry must itself provide the means of reducing water consumption to a practical minimum and I would now like to discuss the most economical approaches to the problem.

### Comparing Costs of Various Systems

"In the foregoing discussion it will be seen that a variety of very adaptable air conditioning equipment is available and that it is arranged to get rid of the heat removed from the residence either by means of water as in the water-cooled condensers of the self-contained units, by wet-bulb, air-cooled, evaporatively-assisted condensing units, or by straight dry-bulb air-cooled condensers. Lately there has been some discussion regarding the relative merits, and costs of these various systems and I would like to present a few of the facts as they actually work out in the various systems.

"All three systems must operate satisfactorily over quite a range of outside temperature and therefore of internal load conditions. In the studies summarized in Tables 1 through 6, the basic performance characteristics of the compressor employed were those shown in Fig. 4. This was a 5-hp. serviceable hermetic compressor of late design, therefore of good capacity even at high discharge pressure.

"Its cooling capacities are shown at the bottom of Fig. 4 at the various evaporator temperatures shown in the scale at the left. Cooling capacity for each evaporator temperature is shown at

(Continued on next page)

"Just when we need it most!"

No "head pressure headaches"...

"It's off again..."

"... look what it's doing to my power bill!"

"... so send a service man right away."

...when you sell

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## Data on Air-Cooled vs. Water-Cooled--

(Continued from preceding page)

condensing temperatures between 90° and 130° by the heavy black lines sloping upward to the right. The B.t.u. equivalent of the electrical energy entering the refrigeration system through the work of compression and heat from the motor is shown in the lighter lines sloping upward to the right. "Thus, for example, for a 40° evaporator temperature and 105° condensing temperature the capacity of this compressor is 61,600 B.t.u. and the B.t.u. entering the refrigeration system from the energy driving the equipment is 16,300 B.t.u. Under these conditions any condenser receiving the refrigerant from the compressor would have to transfer 77,900 B.t.u. to the condensing medium be it air, water, or a combination," he explained.

### Typical Performance for Water-Cooled Systems

"In Table 1, I have summarized typical performance for a water-cooled system at several water conditions; 75° water is frequently available and when employed with a water valve set for approximately 102° condensing temperature, with a well-designed condenser, water may leave at 95°. The amount of water required is rather large, namely 750 lbs. of water per ton of capacity per hour. At average rates of 2 cents per kwh. for electricity and 30 cents per 1,000 gallons for water, the water actually costs more than the electricity to run the compressor and we show a total cost of \$40.74 per 1,000 ton hours of operation.

"In areas where water is available at 65° instead of 75°, less total quantity is required and the operating cost per 1,000 ton hours drops to \$33.24 as seen in column 2 of the table.

### Using Higher Head Pressure To Cut Operating Costs

"Some saving in operating cost can usually be attained by using a higher head pressure providing this also means a higher discharge water temperature, or in other words if the condenser still retains its same efficiency. For example, the last column in Table 1 shows that increasing the condensing temperature by 10° shows a slight increase in power cost but a major decrease in water cost so that \$35.40 per 1,000 ton hours can be attained even when the city or well water is at 75°. Such an increased discharge pressure is often a practical way to reduce expense to the owner.

"Equipment with water-cooled condensers is often used in areas

where the water flowing through the condenser cannot be wasted. In such cases a cooling tower may be used to cool the water which is then recirculated over and over again through the condenser. Table 2 analyzes the cost of such a system.

### Supply Water Temperature Is of Little Importance

"The actual temperature of the supply water is of little importance in systems of this kind but the wet-bulb temperature of the outdoor air is the most important determining factor in the over-all efficiency of the system and in the pressures which will be encountered. The table shows 70°, 75°, and 80° wet-bulb conditions which correspond to the drier areas of the country, the average locations in the country, and to the humid south and seacoast areas. This total change of 10° in wet-bulb temperature is about the maximum that will be encountered in any given location during seasons when home air conditioning is required.

"For the typical case at 75° wet bulb only 35 lbs. of water per ton hour is required but notice that the fan is required to circulate 1,500 lbs. of air per ton hour which is approximately at the rate of 300 c.f.m. per ton. Electrical costs are slightly higher than for the waste-water system, being \$22.96 per 1,000 ton hours, but the water cost is only \$1.05 per 1,000 ton hours giving a total of \$24.01.

### Frequent Cleaning May Be Necessary

"Thus the cooling tower appears more economical than the straight waste-water system, but one should not forget that the water which passes through the condenser is also in contact with dust and dirt in the air and that it is possible for it to pick up algae and other organic materials. Since this material is all passed through the condenser, frequent cleaning operations are usually required, and therefore additional service costs are encountered which would add possibly as much as \$7 or \$8 per 1,000 ton hours in maintenance cost.

"The cooling tower system does have the advantage along with an evaporative condenser system which will be described presently of being relatively insensitive to changes in dry-bulb temperature. In other words, there is no great increase in cost when outside temperature is 110° dry-bulb outside compared to when it is 80° dry bulb as may be seen from the table.

Table 1—Water-Cooled Condenser, Well or City Supply

Water On—°F.	75	65	75
Water Off—°F.	95	95	105
Gallons per Minute per Ton	1.5	1.0	1.03
# Water/Ton-hr.	750	500	515
Resulting Cond. Temp.	102°	102°	112°
Approx. Comp. Watts/T	912	912	1,020
B.t.u. per Watt	13.1	13.1	11.7
B.t.u. Cooling/# Water	16	24	23.4
Cost per 1,000 Ton-hrs.			
Elec. @ 2 cents/kwh.	\$18.24	\$18.24	\$20.40
Water @ 30 cents/1,000 gal.	\$22.50	\$15.00	\$15.00
Total	\$40.74	\$33.24	\$35.40

Table 2—Water-Cooled Condenser on Typical Cooling Tower Installation

Water Supply Temp.—°F.	65-90	65-90	65-90	65-90
Air to Tower D/W	80/70	90/75	100/80	110/80
Air Off Tower D/W	84/82.0	89/85.7	95/89.9	102/90.1
C.f.m./Ton	294	300	304	304
# Air/Ton-hr.	1,270	1,270	1,260	1,240
Water to Condenser—°F.	84	87	90	90
Water Off Condenser—°F.	94	97	100	100
# Circulated/Ton-hr.	1,500	1,500	1,500	1,500
# Make-up/Ton-hr.	35	35	40	45
Resulting Condenser Temp.	101	104	107	107
Approx. Comp. Watts/T	900	938	985	985
Approx. Fan Watts/T	60	60	60	60
Approx. Pump Watts/T	150	150	150	150
Total Watts/T	1,110	1,148	1,175	1,175
B.t.u./watt	10.8	10.4	10.2	10.2
B.t.u. Cooling/# Water Used	343	343	300	267
Cost per 1,000 Ton-hrs.				
Elec. @ 2 cents/kwh.	\$22.20	\$22.96	\$23.50	\$23.50
Water @ 30 cents/1,000 gal.	1.05	1.05	1.20	1.35
Total	\$23.25	\$24.01	\$24.70	\$24.85

"In our experience the most economical residential air conditioning system today available is built around the use of evaporative or wet-bulb condenser principles. The condensing unit consists of a compressor, control, condenser coil, air circulating fan,

and means for causing the condensing coil to be continuously drenched in recirculated water. Essentially this is an air-cooled condenser but it has the advantage that cooling is dependent on the existing wet bulb of the outside air and not on the dry bulb. Since

the wet bulb seldom if ever exceeds 80° it is obvious that very much lower discharge pressures and condensing temperatures can be attained than with the type of air-cooled condenser which depends on the dry-bulb temperature.

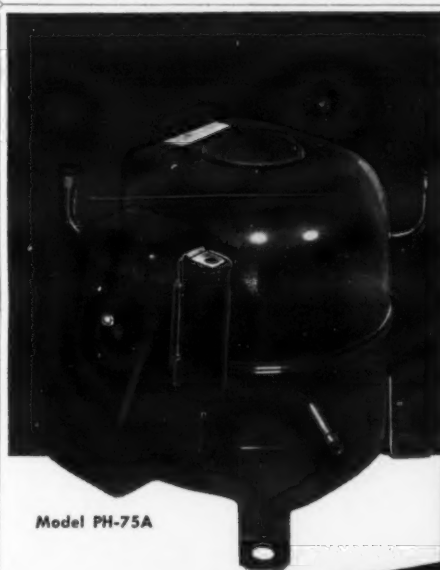
"Referring to Table 3 at 75° wet bulb, it is seen that the electrical cost is comparable to that of the waste-water system and that only 90 cents worth of water per 1,000 ton hours is required. The total operating cost of the power to the compressor and of the condensing system is only \$20.54 per 1,000 ton hours at 75° wet-bulb air to the evaporative condenser.

### Poor Water Conditions Readily Noticeable

"Equipment of this type is exceedingly reliable and any dirt or encrustation which occurs from poor water conditions is readily seen on the coil and can be readily removed by the owner without difficulty. Furthermore, simple water treatment may be used since the entire water system is visible. Continuously during operation a small amount of the water is bled out of the unit so that concentrations of hardness and other solids do not accumulate to an undesirable degree.

"Furthermore, in the particular unit shown, the overflow is so arranged that each time the unit stops operating, the water level rises above the overflow for a

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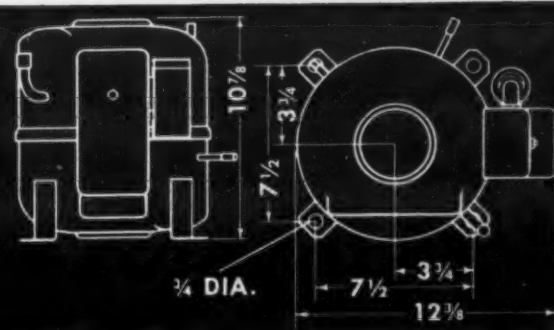
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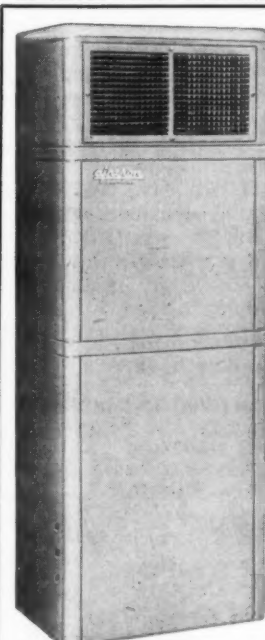
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## Home Air Conditioning Systems--

(Concluded from preceding page) short time and a skimming action occurs to remove algae and floating debris. Of all systems which make use of water in some way this system requires the least attention and is the most dependable. Probably this explains why its use is spreading so rapidly," Newton said.

"The past year or two has seen more systems proposed using air-cooled condensers without any water to supplement their action. As may be seen from Table 4 they require a large quantity of air circulation and are therefore almost always limited to outdoor applications.

"Most cities in the heavily air conditioned areas have prolonged and frequent occurrences of 100° dry-bulb temperature such as are shown in column 3 of Table 4. Then a typical system requires about 1,060 c.f.m. per ton of refrigeration which amounts to 4,380 lbs. of air per ton hour. The expected condensing temperature for the 100° dry-bulb condition is 119.5°.

"The compressor watts per ton for this particular compressor is 1,110 whereas at comparable operating conditions for evaporative or wet-bulb condensing units the compressor watts per ton is 912. This high wattage per ton plus the larger power requirement of the circulating fan results in a system

performance of 8.7 B.t.u. per watt and is a cost of \$27.60 per 1,000 ton hours, all of which is for electricity.

### Air-Cooled Condenser Usage May Spread

"At present air-cooled condensers are particularly adaptable where high dry-bulb temperatures are not experienced for prolonged periods or at frequent intervals. They are undergoing a considerable amount of development and as the problems which they introduced are better understood they will undoubtedly spread to other areas. They require more fan horsepower or electrical input and are able to produce less total B.t.u. per watt of electrical input. Thus they increase the air conditioning demand on power sources disproportionately. Their ratings will be lower for the same compressor than will be the ratings for water-cooled or evaporatively-cooled equipment," he declared.

### Relatively Free From Service Problems

"The air-cooled condensers have the advantage that they are relatively free from service problems although they may frequently require blowing off of dust, dirt, and leaves from the condenser surface. It should be noted too that they are rather drastically affected as far as operating cost

and performance by changes in dry-bulb temperature.

"For example, the compressor watts per ton climbs to 1,255 at 110° outside temperature which is frequently experienced in the warmer areas of the country. This reduction in capacity occurs at the very time when the greatest capacity is needed and one should determine whether the air-cooled equipment must be over-sized as compared to other types of equipment.

"I mentioned the necessity for plenty of air over the air-cooled condenser. However, we frequently see systems that have lower air quantities than those shown in Table 4 and therefore I have prepared Table 5 which shows the performance of an air-cooled condenser system which at 90° dry bulb has about 700 c.f.m. per ton.

### Comparison Should Be Made at 100° Dry-Bulb

"Our actual comparison, however, should be made at 100° dry bulb in order to compare with the figures developed in connection with Table 4. The total pounds of air circulated per hour per ton is 3,080 and the resulting condensing temperature 129°. For 'Freon-12' this would correspond to 176.5 lbs. or for 'Freon-22' it would correspond to 295 lbs. per sq. in. The B.t.u. per watt for the 100° dry-bulb condition is 8.1 and the cost per 1,000 ton hours for electricity is \$29.40.

"In the event that long periods

Table 3—Evaporative Condenser (Water-Miser)

	65/90	65/90	65/90	65/90
Water	80/70	90/75	100/80	110/80
Air Entering D/W	85/81.9	90/85.8	96/89.8	104/90.0
Air Leaving D/W	295	300	305	305
C.f.m./Ton	1,280	1,270	1,260	1,245
# Air/Ton-hr.	25	25	27	30
# Make-up Water/Ton-hr.	100	102	105	105
Resulting Condenser Temp.	887	912	937	937
Comp. Watts/Ton	30	30	30	30
Fan Watts/Ton	40	40	40	40
Pump Watts/Ton	957	982	1,007	1,007
Total Watts/Ton	12.5	12.2	11.2	11.2
B.t.u./watt	480	480	445	400
B.t.u. Cooling/# Water Used				
Cost per 1,000 ton-hrs.				
Elec. @ 2 cents/kwh.	\$19.14	\$19.64	\$20.14	\$20.14
Water @ 20 cents/1,000 gal.	.90	.90	.97	1.08
Total	\$20.04	\$20.54	\$21.11	\$21.22

Table 4—Typical Air-Cooled Condenser

	80/70	90/75	100/80	110/80
Air Entering D/W	87.9/74	97.5/78.7	106.9/83.1	116.3/83.0
Air Leaving D/W	950	1,000	1,060	1,140
C.f.m./Ton	4,100	4,240	4,380	4,650
# Air/Ton-hr.	101°	110°	119.5°	129°
Resulting Condenser Temp.	958	1,000	1,110	1,255
Approx. Comp. Watts/Ton	270	270	270	270
Approx. Fan Watts/Ton	1,228	1,270	1,380	1,525
Total Watts/Ton	9.8	9.4	8.7	7.8
B.t.u./watt				
Cost per 1,000 Ton Hrs.				
Elec. @ 2 cents/kwh.	\$24.56	\$25.40	\$27.60	\$30.50

Table 5—Air-Cooled Condenser with Lower Air Quantity

	80/70	90/75	100/80	110/80
Air Entering D/W	91/94.7	100.2/79	109.6/83.5	118.5/83.4
Air Leaving D/W	680	700	745	805
C.f.m./Ton	2,850	2,960	3,080	3,290
# Air/Ton	111°	120°	129°	138°
Resulting Condenser Temp.	1,010	1,125	1,250	1,410
Approx. Comp. Watts/Ton	220	220	220	220
Approx. Fan Watts/Ton	1,230	1,345	1,470	1,630
Total Watts/Ton	9.75	8.9	8.1	7.4
B.t.u./Watt				
Cost per 1,000 Ton Hrs.				
Elec. @ 2 cents/kwh.	\$24.60	\$26.90	\$29.40	\$32.60

Table 6—Summary of Residential Air Conditioning Operating Cost

Type	Evaporative				Air Cooled	
	Waste Water	Cooling Tower	Con-denser	Air Cooled Large Volume	Air Cooled Small Volume	
Water Temp. ....	75°	75°WB	75°WB	90°DB	100°DB	90°DB 100°DB
Av. Outside Temp..	.....	75°WB	75°WB	90°DB	100°DB	90°DB 100°DB
Gal. Water/1,000 T-hr. ....	90,000	4,200	3,000	.....	.....	.....
Watts/Ton	912	1,148	982	1,380	1,525	1,470 1,630
B.t.u./Watt	13.1	10.4	12.2	8.7	7.8	8.1 7.4
B.t.u. Cooling/#	.....	.....	.....	.....	.....	.....
Water	16	343	480	.....	.....	.....
Cost/1,000 Ton-hr.	.....	.....	.....	.....	.....	.....
Elec @	.....	.....	.....	.....	.....	.....
2 cents/kwh. . .	\$18.24	\$22.96	\$19.64	\$27.60	\$30.50	\$29.40 \$32.60
Water @ 30 cents/1,000 gal.	\$22.50	\$ 1.05	\$ .90	.....	.....	.....
Total	\$40.74	\$24.01	\$20.54	\$27.60	\$30.50	\$29.40 \$32.60

of operation are required at 110° dry bulb it should be noted that the conditioning temperature will rise to 138° and the total cost for power will increase to \$32.60 per 1,000 ton hours.

"I think the foregoing figures are very interesting and I hope they will be useful in helping people compare the performance of different types of heat rejection systems on a factual basis in different parts of the country.

"To further assist in such a comparison I have included Table 6 which summarizes the other five tables. Table 6 shows the most common condition faced by each type of system and shows the resulting B.t.u. per watt and total cost in dollars per 1,000 ton hours. It is interesting to note that the waste-water system gives the most B.t.u. per watt, namely 13.1 but that the evaporative-condenser system is a very close second with 12.2 B.t.u. per watt.

"The lowest performance is obtained with the small volume air-cooled condenser operating in a 100° dry-bulb temperature condi-

tion wherein 7.4 B.t.u. per watt is the attainable figure.

### Gas Powered System Might Be Welcomed

"I mentioned above the power supply requirements of air conditioning and electric utilities all over the country and particularly the heavily air conditioned areas are finding it necessary to increase their generating or distribution equipment and in many cases both types of equipment. If a small, efficient, inexpensive means of utilizing gas for air conditioning could be developed it would undoubtedly be welcomed with open arms by most gas utilities since they have excess capacity available during the summer in contrast to the electric utilities which actually must reduce their available capacity during the summer.

"We ourselves have been doing a considerable amount of work in gas air conditioning, hoping to attain with gas the advantages of the more economical systems we already employ," he revealed.

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**LAWRENCE, KANSAS**



## Refrigeration Problems and their solution

by Paul Reed

For Service and Installation Engineers



Paul Reed

### Spring Inspection (2)

The first step in spring inspection is to go over the entire equipment and clean it. Dirty equipment cannot operate to the best advantage. Dust, lint, excessive oil, or other coatings tend to insulate the equipment and prevent it from radiating heat and keeping itself cool. This can be highly important in the case of condensers, but it is also important in the case of motors, compressors, and some controls.

Dust, lint, and other foreign matter may even more seriously interfere with the proper operation of switches, relays, and starters. Dirt on contact surfaces will eventually cause the contacts to arc, burn, and stick. Accumulation of dirt must therefore be prevented.

If the covers of the controls are dirty, it is inevitable that some of the dirt will find its way inside and get on the operating mechanisms.

#### CLEANLINESS FACILITATES LEAK TESTING

If for no other reason, the equipment should be cleaned and kept clean to facilitate the finding of leaks. Coatings of dirt or lint make it almost impossible to test for leaks.

Moreover, if, when the inspection is completed, the equipment is still dirty, the customer is inclined to doubt if much work has been done. If, on the other hand, the equipment is left clean, the customer is impressed. His equipment looks newer and he is bound

to be better pleased with the results of the inspection.

So, wipe off the motors, compressors, control covers, and even the base. Pay particular attention to fan blades. Clean them thoroughly, for dirty fans are less efficient in moving air, and the dirt may cause or contribute to noisy operation of the fans.

#### CLEAN CONDENSERS ARE A MUST

It is quite obvious that air-cooled condensers must be clean. Dust or lint impedes the passage of air through the condenser and coatings of dirt on the fins or tubes keep them from transmitting the heat to the air, resulting in higher condenser temperatures and higher head pressures.

Even though a condenser may appear to be fairly clean, it may still have enough dirt on the surfaces to cause a reduction in capacity of the system and longer operating time.

The outer surfaces of water-cooled condensers should be clean; for even though the major portion of the cooling of a water-cooled condenser is done internally by the water, some heat is radiated from the outer surfaces. This is particularly true of the double pipe and tube-within-a-tube types of water-cooled condensers.

So, make sure that the surfaces of all condensers are clean. If necessary, use thin brushes to clean between pipes or shells. Small portable vacuum cleaners are very useful in cleaning condensers and other surfaces that are difficult to get at with wiping rags or brushes. The vacuum cleaner can also be used as a blower, for dust and lint can often be more effectively blown out than sucked out.

The water-cooled condenser must be clean internally as well as externally. Alkalis or other solids in the cooling water tend to deposit themselves on the inner surfaces of the water tubes, forming crusts that interfere with the rate of transfer of heat from the refrigerant to the water. This results in the use of excessive amounts of cooling water and in excessive head pressures. This applies also to the coils of evaporative condensers.

In the case of shell-and-tube water-cooled condensers, it is usually possible to remove the ends of the condensers and inspect the condition of the water tubes. If they appear encrusted or otherwise partially stopped, they can be cleaned by passing special wire brushes through the tubes.

#### CLEANING WATER-COOLED CONDENSERS CHEMICALLY

Some types of water-cooled condensers, such as the tube-within-a-tube type, cannot be opened for visual inspection and cleaning. Even these can be cleaned by the circulation of chemical solutions that dissolve the scale. It is also sometimes necessary to clean shell-and-tube condensers in this manner.

This method was described in a previous issue and is included in Chapter 62 of Volume 4 of the manuals "Refrigeration Problems."

Excessive head pressures and usage of excessive amounts of cooling water are evidences that water-cooled condensers are partially stopped with scale and mineral deposits. Condenser efficiency varies somewhat with design, so it is sometimes difficult for the service engineer to know whether

a water-cooled condenser is partially stopped or not. If the manufacturer's data is available, he can often determine from it whether the condenser is operating efficiently or not.

If such data is not available, the serviceman can make a rough estimate of the internal cleanliness and efficiency of a water-cooled condenser by the following method:

In the refrigerant tables, look up the head pressure at which the condensing unit is operating. The corresponding saturation temperature of the refrigerant, as shown in the tables, is the Condensing Temperature.

Then take the temperature of the liquid refrigerant leaving the condenser. If this temperature is more than about 5 or 6° F. higher than the condensing temperature, it is an indication that the condenser is not operating efficiently and that the internal surfaces of the condenser are fouled with solids deposited by the water.

Another method, somewhat less accurate perhaps, is by taking the outlet water temperature instead of the liquid refrigerant temperature. On condensers connected to city water, the outlet water temperature will normally be about 10 or 12° higher than the condensing temperature. If it is greater than 12°, a fouled condenser may be suspected.

If the water-cooled condenser is supplied from a cooling tower, the outlet water may normally be only 5 or 6° F. above condensing temperature, and a fouled condenser may be suspected if it is greater than about 6°.

In judging condenser performance, it is very helpful if there are records available showing normal head pressures, inlet and outlet water temperatures, and gallonage of water usage.

#### BLOWER COIL MUST BE CLEAN, TOO

Do not overlook the blower coil in the cleaning operation. It sometimes becomes fouled with lint or other particles in the air. Clean it as you would an air-cooled condenser.

Check the cleanliness of the blower coil fan and fan motor. Also inspect the drain pan for bits of paper or similar materials. See that the drain line is not partially stopped. If it appears to be, it can usually be cleaned by twisting a wire through it and then flushing it out with water.

#### GRILLES, DUCTS, AND FILTERS

On air conditioning systems, always check the discharge and return grilles. They will most likely be found to be dirty and should be brushed out or cleaned out with a vacuum cleaner. Some types may be easily removed for more thorough cleaning.

Ducts should be inspected, particularly in restaurants or other applications in which dirt and grease may be present in unusual amounts. Small ducts can usually be blown out with compressed air or CO<sub>2</sub>. Large ducts can be entered and cleaned by brushing and blowing out.

Replacement or cleaning of air filters is a must for spring inspection of air conditioning installations whether they are the large central fan systems or room or store coolers. Dirty filters are probably the most frequent cause of under-capacity of air conditioning systems, and of complaints by the occupants. Abnormally low suction pressure is a common symptom of dirty filters.

Except in emergencies, do not attempt to clean and re-use the throw-away type filter. It is false economy that costs more than it saves. Never operate air conditioning systems without the filters. Doing so may result in an extensive and expensive cleaning job later.

(To Be Continued)



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## Approaches To the Export Market Today

Maurice Zatkan, Veteran In the Commercial Field, Discusses Salient Points In Selling Refrigeration Equipment To Customers Around the World

DETROIT—A swing through Central and South America and the Caribbean area and then his first trip around the world by plane are planned for this summer by Maurice Zatkan, traveling representative of Fogel Refrigerator Co., Philadelphia.

Zatkan discussed plans for his forthcoming trips during a recent interview here. He visited Detroit in the course of an extensive tour of the central and northern sections of the United States.

While abroad this summer, Zatkan will contact Fogel's network of foreign distributors, set up new outlets, conduct sales meetings, inspect Fogel installations, and make a survey of the commercial refrigeration market.

He will report his findings on what types of equipment are needed to Fogel's research department so the company can cater to these wants.

On his Caribbean tour, Zatkan plans to stop at points off the beaten track for commercial travelers, as well as at major centers. His itinerary includes Puerto Rico, the Dominican Republic, Haiti, Jamaica, Cuba, Martinique, Guadeloupe, British Honduras, and Panama. In South

America, he will journey as far south as Peru.

Leaving about June 1, Zatkan will spend some four or five weeks in Latin America and then will return to Philadelphia before departing for his global tour.

### Hawaii First Stop

While his itinerary for the world tour is not yet definite, he tentatively plans to visit Hawaii, the Philippines, Singapore, India, Egypt, Israel, Lebanon, and Europe. Switzerland, Belgium, Spain, and Portugal are among the European nations he is considering visiting.

Why the world-wide tour? For one thing, Zatkan explained, the export business is an important facet of the Fogel operation. For another, he discovered he could arrange an air tour of the world for considerably less expense than for separate trips to particular areas.

While Zatkan has made numerous trips to various parts of the world, Latin America is the main beat of "Mauricio," as he is known south of the border. He visits this area on an average of five or six times a year, making quick trips by air of a few weeks' duration. He speaks Spanish, and gets along

easily with Latin Americans, he said.

Zatkan reported that his top markets at present are Venezuela and Colombia, which he described as "terrific." Victor Grunwald of Caracas is the distributor in Venezuela for Fogel, while Francisco Langer of Bogota is the company's field representative for Colombia and also Ecuador.

Panama is another good market now, Zatkan noted. Electric Distributors, Inc., operated by Ralph and Rene Delima, covers this isthmus for Fogel. This company has two big showrooms in Panama City and, according to Zatkan, has sold several hundred pieces of Fogel equipment.

Zatkan considers Cuba and Jamaica fertile territory, too. Cuba's National Machinery Corp. is the Fogel outlet on that island. Jamaica is covered by Jamaica Electric Supplies.

Haiti is a market just recently opened for Fogel. Elie Joseph in Port au Prince, who is primarily a food importer and distributor, handles the Fogel line there.

Across the island in the Dominican Republic, Fogel has an active distributor in Importadora Tropical C. Por A. of Ciudad Trujillo.

Two other noteworthy Fogel outlets cited by Zatkan are Hawaiian Distributors in Honolulu and Peerless Equipment Co. in St. Johns, Newfoundland.

Haiti and Jamaica, new territories for Fogel, are good examples of what Zatkan calls his "pioneering" sales technique.

### Finds Life In 'Dead' Markets

"I try to do things that are not obvious," the former Philadelphia school teacher explained. "I will go into markets that are considered 'dead' by other firms and cultivate contacts. I may keep in touch with them for three or four years without getting any business. Then all of a sudden, the market cracks and I am in on the ground floor."

Jamaica, for example, has been considered a dead market because it is "dollar short" and the government closely controls imports. Because distributors could not get permission to import refrigeration equipment, other companies did not waste their time there, Zatkan related.

But Zatkan continued to visit Kingston and became friends with a wealthy hotel owner who also operates an electrical distributorship. Because he was in the tourist trade, which the government does everything to encourage, the hotel owner was able to get dollars to buy refrigeration equipment for his hotels and for other tourist businesses, Zatkan continued. This contact has resulted in a nice business for Fogel, Zatkan said.

### Haiti Pays Off

Haiti, too, is now out to build up its tourist business and has recently encouraged improvement of hotels and other tourist attractions. As a result, Fogel has been getting orders from a distributor Zatkan cultivated over several "dry" years. For example, there are now a dozen Fogel walk-ins installed in Port au Prince hotels, Zatkan noted.

He also recalled how he had "nursed along" for four years relations with a firm in Lisbon which



GLOBE TROTTER Maurice Zatkan checks the globe for stopover points on his coming flight around the world. He says he finds the NEWS wherever he goes.

had handled only domestic refrigerators. Then, "right out of the blue," the company decided to go into commercial refrigeration and sent Zatkan a \$10,000 letter of credit, with instructions to spend it for whatever commercial equipment he thought best.

Zatkan said he sent the firm good, conservative basic stock that he figured the concern could sell easily and told the owner he could return any items not wanted. The customer was very happy with Zatkan's selection and no equipment was returned.

Basic selling premise on which Zatkan operates is that you've got to sell yourself first before you can sell anything to the export market. He calls it "socialized" selling.

Zatkan makes a point of getting to know his contacts well, showing a sincere interest in them and their families, and meeting their friends. To illustrate this point, he noted that although he detests handling guns, he regularly goes alligator hunting with one Latin American distributor.

When in Cuba, Zatkan does as the Cubans do: He wears the long, loose-fitting, open-neck white shirt that Cuban businessmen habitually wear. "It's really much more comfortable," he commented, "and (Concluded from preceding page)

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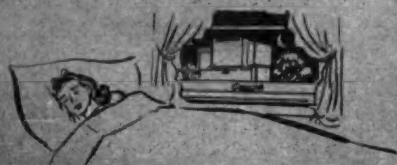


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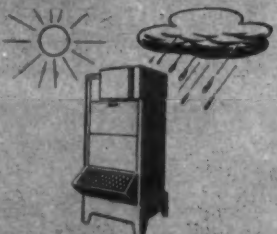
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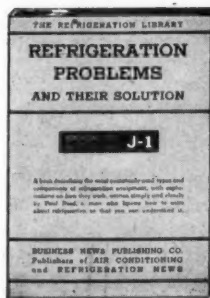
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5-17-54



## Golden Rule, Constant Optimism Doubly Important In Selling Abroad, Zatzko Finds

(Concluded from preceding page) you're not immediately spotted as a foreigner."

Following the Golden Rule in business operations is particularly important in the export field, Zatzko says. He pointed out that even though a customer is a thousand miles away, it is imperative to be "scrupulously honest" with him. Dishonesty can be ruinous, for when one distributor complains about you, the word quickly gets around and you will do no more business in that country. For these reasons, he says, it is more important to keep his word than make an immediate sale.

### Tomorrow A Better Day

Constant optimism and enthusiasm are other requisites in selling, according to Zatzko. If a distributor is not doing too good a job or is "down in the dumps," cheerfulness and optimism are bound to rub off on him and pep up his business, Zatzko has found.

For example, Zatzko recently called on a glum distributor who told him right off the bat business was dead and he would give him no order. Zatzko gave him the "tomorrow will be a better day" talk and before leaving had an order for one display case.

"Now that may not seem like much," Zatzko observed, "but the man was dead set against giving me any order when I first went in." He added: "After all, it's the order that counts in selling. Everything else is secondary."

### Revolutions and Voodoo

As might be imagined, Zatzko has had some unusual experiences during his 10 years as a globe-trotting salesman. One time he found himself innocently involved in a revolution in Venezuela. Another time, while in Kingston, Jamaica, he spent the time of day with Actor Charles Laughton. In

Haiti one night, at a loss for something to do, he accepted an invitation from his native driver to watch a voodoo ritual back in the hills.

### Palace As a Showroom

And, believe it or not, he once used the presidential palace in Guatemala as a showroom. This came about as the result of selling two 60-cu. ft. reach-in refrigerators to a manufacturers' representative, one Gonzalo Cabrera, for installation in the employees' dining room of the palace.

Several months later Zatzko was invited by the palace steward to be a guest at the palace. On his next trip to Guatemala City, Zatzko was given the unusual privilege of bringing two or three friends with him to the palace each day to inspect the reach-ins which were installed there.

Since these were the only Fogel units in Guatemala at the time, Zatzko used the privilege to bring other prospective customers to see them. Within 10 days, he sold 15 large reach-ins and a number of other units to local customers.

### Guatemala 'Uncomfortable'

Times have changed since those days, of course, and Zatzko is not planning on this trip to visit the country. The leftist government is making Yankee businessmen extremely uncomfortable, he reported.

For economic reasons, Zatzko currently doesn't visit Argentina, Brazil, and Chile. However, he is keeping a close eye on these countries so he can begin his "courtship" when he feels that the time is ripe.

He believes, however, that now is the time to begin cultivating the Spanish market (one of his planned stops on his coming world tour) in view of that "poor" country's growing industrialization and military significance.

## Adams Is Named Jordon Representative In Ohio

PHILADELPHIA—I. J. Adams has been appointed factory sales representative in Ohio for Jordon Refrigerator Co., it was announced by Harry Fogel, executive vice president.

Adams will handle both the domestic and commercial lines for the company, which manufactures Jordon refrigerators, upright freezers, and air conditioners.

He was formerly divisional manager in Columbus for Westmorland Sterling Div. of Alcoa. Prior to that, he had held the position in Omaha, at which time he led the district in personal sales and total division sales for two years.

A graduate of the University of Minnesota, Adams has been in sales most of his life. He was salesman for the aluminum cooking utensil company division of Alcoa, until he went into intelligence work for the war department in 1940. He served with the army until 1945.

### United Fixture Organizes

TOPEKA, Kan.—United Fixture and Air Conditioning Co. Inc., 209 Kansas Ave. here, has been granted a charter. Incorporators of the cooling and heating firm are E. C. and Aleene Nagels and Chester W. Peterson. Hal C. Davis, Topeka attorney, is resident agent.

## Commercial Refrigeration



DEMONSTRATING THE PRODUCT'S WORTH RIGHT ON THE CUSTOMER'S FLOOR is Charlie Rogers, western zone sales manager for Sherer-Gillett Co., shown here at work at Arata Brothers' supermarket in Sacramento, Calif. Having had a hand in the installation of a Sherer "Mr. 4 x 4" refrigerated display table Rogers then helped out in the demonstration of the hams and sausage made by the Bi-Rite Sausage Co. which were displayed on the table.

Arata Bros. reported that as a result of the open display of the ham and sausage and the bite-size samples passed out to shoppers, a total of 5,910 lbs. of hams and sausage were sold during the two-day demonstration, with store hours of 9 a.m. to 6 p.m.

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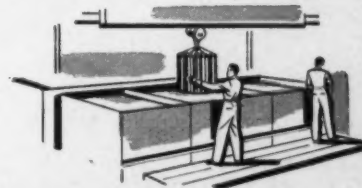
Temprite coolers (in 18 models) are easy to install because every model is equipped with an infinite pressure control valve, a liquid control float valve, and liquid and suction line shut-off valves. No additional controls are needed.



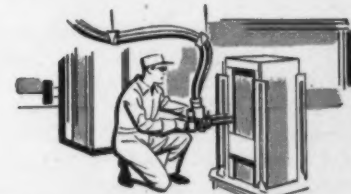
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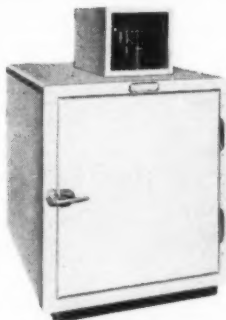
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For stores specializing in on-the-spot production of ice cream, Beverage-Air provides refrigerated facilities for storing ice cream mixes... production can be planned in advance of "rush-hour" confusion! Easy accessibility and top cooling efficiency make it ideal for increasing business turnover. Available in sizes to accommodate 4, 6, 8, 12 and 16 ten gallon cans, this unit can also be utilized for storing bulk milk and other dairy products.



### WET or DRY type CAFETERIA COOLERS

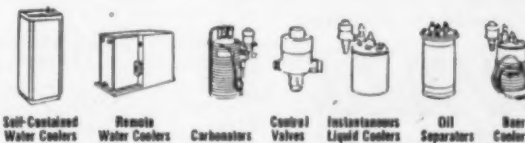


Beverage-Air's easy-to-reach interiors and handy lid arrangements help speed service in "over the counter" or "self-service" installations. Attractive, durable white enamel cabinet finish, stainless steel lids and top railing provide easy-to-clean surfaces. A simple twist of the control knob changes the cooler to either wet or dry type cooling. Available in two sizes and other finishes. Water faucet optional on all models.

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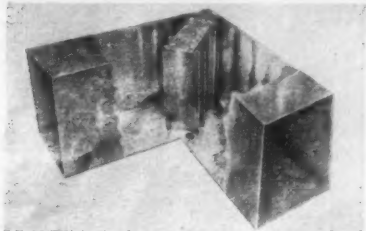
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## What's New

When requesting further information on new products, please use "Information Center" form.



### Vane Rail Speeds Making Of Air Turning Vanes

KEY NO. D-530

NEW HYDE PARK, N. Y.—A faster method of making air turning vanes for square or change-of-size elbows is made possible by use of the new "Duro Vane Rail," the Duro-Dyne Corp. announced.

The company claims that use of the rail will save 50 to 70% of installed cost by the fabrication of air turning vanes.

Vaness and pre-slotted vane rail can be shipped "knocked down" to the job. They nest perfectly, the company asserts, and taken only a fraction of the space required by assembled units. The vane rail is shipped in 200 ft. bundles of 8-ft. rails.

To use the Duro vane rail, only three steps are necessary:

1. Cut vanes from scrap, with no tabs necessary. Roll to form an approximate quarter-circle arc. Position vane in depressed slots in the vane rail. Slots force the vane to form the proper curve.

2. A chisel is placed at the designated angle. One hammer blow cuts and bends part of the vane protruding through the slot to form a strong lock.

3. After vanes are inserted into top and bottom rails, assembly is then ready for insertion into the elbow.

The company offers a "visual manual" to illustrate this technique.

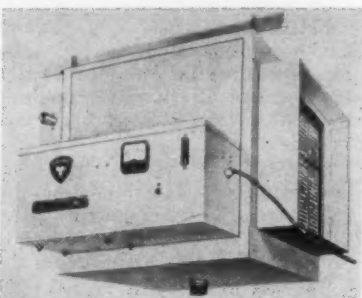
### Electronic Air Cleaner Designed for Small Homes

KEY NO. D-531

McKEES ROCKS, Pa.—An electronic air cleaner for small homes has been introduced by Trion, Inc. here.

Slightly larger than a window air conditioner, the unit fits into the air conditioning or heating

ductwork near the furnace. It is suspended from the ceiling and plugs into an electric outlet, using no more current than a 40-watt



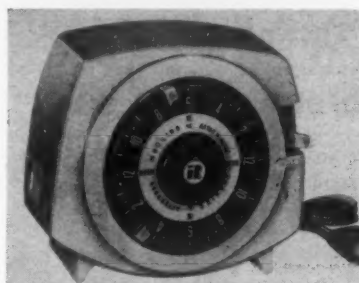
bulb. It operates silently the year-round.

The company explained that the electronic air cleaner operates on the principle of magnetic attraction. All airborne particles receive a positive electrical charge as they pass through the unit and are attracted and collected on metal plates having a negative charge. It is similar to the attraction of iron filings to a magnet.

About once a month the collected dirt is flushed from the plates to a sewer by a built-in water spray system.

Trion claims that the unit effectively removes practically all dirt, dust, smoke, soot, pollen, virus, and bacteria from the air.

Called the "automatic housekeeper" it incorporates all the features and provides all the advantages of larger Trion models, the company said.



### International Register Dresses Up 'Time-All'

KEY NO. D-532

CHICAGO—A new model of the Intermatic Time-All, redesigned for easier operation and greater eye-appeal, has been introduced by the International Register Co. here.

Its plastic case is in a gray tone, and is set off by the time dial's two shades of green. Redesigned numbers and a newly designed time dial provide even better legibility than in previous models, according to International Register.

The Time-All is used to make appliances fully automatic, and does not have to be reset each day. This automatic timer retails for \$11.95.

### G-E Bows Lightweight 1/3-Hp. Sump Pump Motor

KEY NO. D-533

SCHENECTADY, N. Y.—A new sump-pump motor, 25% lighter than previous models, has been announced by the General Electric Co.'s general purpose component motor department.

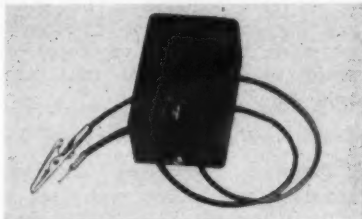
The new motor has aluminum end-shields, cast aluminum rotor, and welded steel shell for maximum strength. "Formex" insulated windings plus slot and between-phase insulation of polyester film

provide protection against humidity and cellar dampness. The entire stator assembly is protected by a dip-coat of "Glyptal" water and heat-resistant varnish, according to the firm.

Meeting NEMA standards for sump pumps and cellar drainers, the new open dripproof motor, type KH (split phase), is equipped with drip-cover, built-in switch, and bottom flange for direct mounting.

Weight or float switches are optional.

Rated at 1/3 hp., the motor is available in 50 cycle-1,425 r.p.m. and 60 cycle-1,725 r.p.m. models, and 115/230 volts.



### Tester Checks Electric Circuits with Power Off

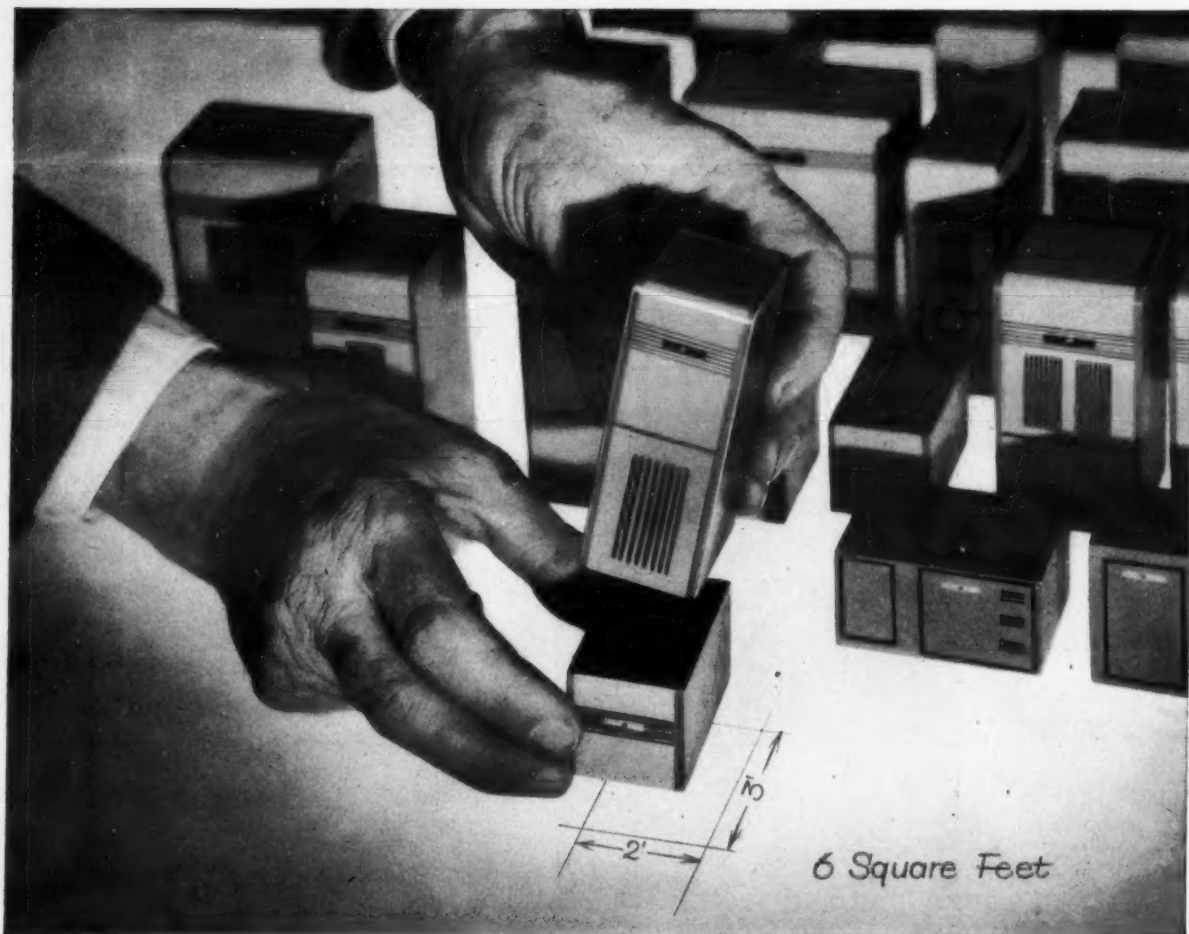
KEY NO. D-534

CHICAGO—A device that permits safe testing of electrical appliances and circuits with the power off has been introduced recently by the Krest Products Co. here.

Called the Krest Tester, the unit checks for open circuits, shorts, and grounded circuits by supplying its own testing current at a safe voltage and amperage. According to detailed instructions furnished with each unit, the intensity of light from the tester's bulb when its leads are applied to the circuit serves as a quick and positive check of the circuit under varying conditions.

The tester can be used to check appliances, motors, generators, automobile circuits, switches, wiring, lamps, fuses, and other electrical devices. It will retail for \$2.95.

## Now—4,784 heating-cooling combinations from 50 basic G-E units...



### ...exclusive feature of "The Franchise with a Future"

**UPFLOW, DOWNFLOW, HORIZONTAL UNITS—G. E. HAS THEM ALL.** Assembling this new G-E Downflow Year-Round Air Conditioner is almost as easy as it looks in the picture. G. E.'s Upflow Furnaces and Cooling Units, and Horizontal Furnaces and Cooling Units, pair up the same way. Heats with gas or oil, cools by electric refrigeration (water- and air-cooled models). And with G-E Air-Wall System, whose registers handle heating and cooling equally well, the G-E dealer can tailor comfort to fit any home—sell modern living at its best.

New dealers are needed in this rapidly expanding field. Would you like to know more about your opportunities as a G. E.-franchised dealer? Then mail the coupon today!

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1. G. E. enjoys best consumer acceptance in the field.
2. Most flexible (and most copied) heating and cooling line on the market.
3. G-E units are easier to handle and install. Units are factory-wired, assembled and fire-tested ... pass through normal doorways without dismantling.
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5. G. E.'s consistent national advertising to homeowners and builders pre-sells your prospects.
6. G. E. supports you with local newspaper advertising, literature, displays, sales plans — to sell homeowners and builders.

**GENERAL ELECTRIC**

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## What's New (Con't)



### Hotpoint Puts Maple Top On Mobile Dishwasher

—KEY NO. D-535—

CHICAGO—A new mobile dishwasher, model 43MCP22, with a laminated maple wooden top has been announced by Hotpoint Co.

The new dishwasher, first of its kind to be introduced in the appliance industry, will be made available to dealers about the middle of May, John F. McDaniel, vice president of marketing, Hotpoint Co., announced.

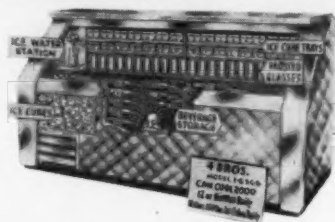
The laminated maple top is 1½ in. thick, 27 in. wide, and 23¾ in. deep. Layers of hard maple wood are laminated together, sealed, and bolted to lend additional strength and durability to the top. The wood used in making the top is the same wood used by butchers and is made by the oldest wooden block manufacturer in the world, McDaniel said. The top is flush mounted on all sides.

The marketing executive said that Hotpoint feels the maple top mobile is the possible answer to a needed sales stimulus in the present dishwasher market.

Besides using the mobile as a dishwasher, the top acts as a place for mixing beverages, crushing ice cubes, dicing and slicing fruits and vegetables, trimming and pounding meats, kneading dough for pastries, cleaning poultry and fish, and as a side table.

Hotpoint research showed that after months of continuous pounding and hammering on the maple top, no visible effects, either to the top or the dishwasher, were noticed. Care of the top is simple and easy.

McDaniel said that the mobile dishwasher is the same mobile Hotpoint introduced early in January, 1954.



### Combination Is Beverage Cooler, Ice Cube Maker

—KEY NO. D-536—

PHILADELPHIA—The new "5-in-1" combination beverage cooler and ice cube maker produced by 4-Brothers Refrigeration Mfg. Co. here is claimed to have capacity to dry cool 2,000 12-oz. bottles daily, and to produce 250 lbs. of ice cubes daily.

Designated as model 1-6 SC D, the refrigerated fixture has special application in night clubs, taverns, grilles, and other establishments where utility and beauty must be combined in the fixture. In addition to the functions named above, the "5-in-1" also provides a frozen foods shelf, a space in which to chill and frost beverage glasses, and storage space for ice cubes.

The case is made in 4 to 10-ft. lengths, is 27 in. wide, 39 in. high, or custom-built to required measurements.

Models can either be self-contained, or can use a remote condensing unit. Cabinet has 4 in. of insulation.

A light in the storage area makes selection of bottled beverages easy and fast.

### Ice Maker Produces Both Cube, Crushed Ice

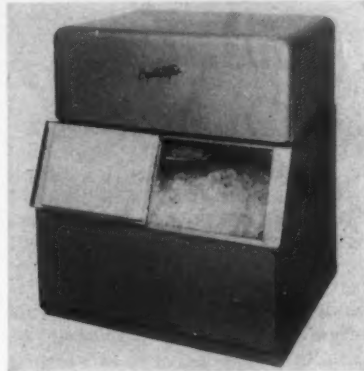
—KEY NO. D-537—

FARIBAULT, Minn.—American Automatic Ice Machine Co. is now introducing its new model B-200 "2-in-1" ice maker which produces ice in both cube and crushed ice sizes.

This new 2-in-1 feature does not require an additional crusher mechanism, the company pointed out.

"To change from cube ice size to crushed ice size it is only necessary to turn the selector switch," it was explained. "Crushed size ice is produced in uniformly small disk-shaped pieces. Cubes are solid round pieces weighing over ¾ of an ounce."

The unit manufactures up to



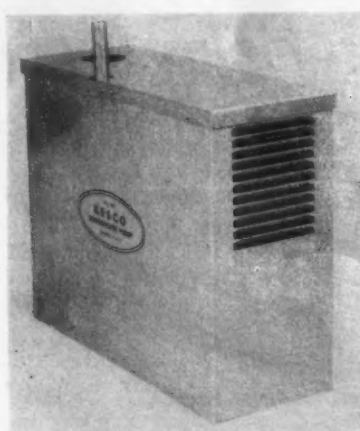
200 lbs. of ice in a 24-hour period, according to the company. An additional feature of the standard model is the incorporation of a 24-hour storage bin as standard equipment.

"The unit requires only 6 sq. ft. of floor space and is of a height to permit under-counter installations," the manufacturer said. "It is air cooled and installation requires only two simple plumbing connections. Installation costs are further reduced since only a standard electrical outlet is necessary," the company further stated.

### Designs Floodproof Condensate Disposal Unit

—KEY NO. D-538—

SPRINGFIELD GARDENS, N. Y.—A condensate disposal unit so designed that at no time can the water reach the pump motor bearing, or flood the motor, is now



being marketed by Kesco Products Corp. here.

The compact automatic condensate water disposal unit will drain 4 in. from the floor and push water up and around beams and over doors, the company claims. It provides an answer for low drain air conditioners and will take the place of waste water pails used with drinking fountains and ice storage bins.

The 1954 Kesco model measures 9 in. high by 11 in. wide, and is 4½ in. thick over-all. It features a splash-proof water tank with a sediment compartment and a removable cover, making it possible to clean the container without disconnecting the unit. Other features include a heavier water displacement float for stronger switch action and an improved stainless steel check valve, the manufacturer claims.

## A TYPHOON FRANCHISE IS PROFIT INSURANCE IN Air Conditioning

Air Conditioning Units  
1½-20 tons  
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2-20 tons  
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## How do you sell refrigeration to the prospect who says . . .

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Here's how!

1. Understand his problem. He pays his supply bills daily . . . there just isn't enough money at the end of the month to make lump-sum payments.
2. Explain to him about the pay-as-you-go Meter-Matic sales plan. He'll see that this way he can afford the refrigeration he needs.
3. Installation is simple . . . in just a few minutes you hook up the meter between switch box and refrigerator. If money isn't deposited daily, current to refrigeration is cut off.
4. You have a happy customer—because he pays for his refrigeration the "painless" way—with small-change daily. You've made a sale that would be impossible to make any other way.

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REFRIGERATION SALES PLAN

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Supplying the Food Industry for 84 Years



# Air Conditioning Helps Many Industries To Improve Products and Speed Output

By John O. Sweet & George M. Hanning

TOLEDO—Industrial air conditioning has a great fascination for Robert Greenwald, and this has led to a number of interesting installations for the Lumm Corp., whose air conditioning division he heads.

Lumm installations are helping manufacturers of such products as machine tools, ball bearings, carbon production, glass fibers, and optical products. They also provide the conditions for conducting tests on a number of items for quality control.

Although the bulk of the division's business is currently in comfort air conditioning, the concern is expanding more and more into the industrial field, according to Greenwald.

## Manufacturers Are Learning

"Manufacturers are learning to use controlled conditions of temperature and humidity as a tool in improving product quality and speeding up production," he stated.

In the comfort field, the Lumm Corp., which claims to be Toledo's largest ventilating and air conditioning contractor, has cooled five floors of the Toledo Trust Co., 50,000 sq. ft. of office space for

A. O. Smith Co., portions of the Commodore Perry, Secor, and Willard hotels, and two local S. S. Kresge stores—to mention only a few of the firm's installations.

Founded 51 years ago, the company is headed by A. H. Lumm and his three sons, A. H., Jr., William C., and Robert P. The firm offers a complete sheet metal service and has made sheet metal and ventilating equipment installations throughout the eastern half of the country.

Although Lumm ventured into the air conditioning business briefly 15 years ago, it wasn't until 1950 that the company established the present air conditioning division to handle the Worthington line.

Since its inception, the division has been headed by Greenwald, a graduate of Carnegie Institute of Technology and a registered professional engineer. Prior to joining Lumm, he was an engineer for Smith & Oby, Cleveland air conditioning firm.

At one time during World War II, Greenwald was a project engineer at Wright Field, Dayton, where he did extreme temperature and altitude testing work.

It was while he was at Wright Field that Greenwald got the idea of employing the direct injection of carbon dioxide into a test chamber as a means of temperature reduction. Recently, he applied this principle in a defense-plant test installation.

In this project, a test chamber was built around a 50-ton stroking press so pressure could be applied to the test part at -100° F. or 165° F.

## Mechanical Refrigeration Too Expensive

Mechanical refrigeration would have been too costly as tests were required only about once in two or three months. Furthermore, it wouldn't lend itself to easy disassembly—one of the requirements of the project.

So Greenwald devised a piping system to spray carbon dioxide into the room. The chamber was first packed with dry ice 24 hours in advance, which reduced the temperature to -30° F. The carbon dioxide spray, supplied from a tank truck, was then used to complete the reduction to -100° F.

This system has used a lot of carbon dioxide and dry ice but the cost was still less than it would

have been for a mechanical refrigeration system, Greenwald commented.

## Jig Boring Room Installation

Another unusual Lumm installation is an air conditioning system for the jig boring room of Baker Bros., Inc., Toledo manufacturer of machine tools.

This 10-ton system maintains a constant room temperature to permit the extremely close machining tolerances required on the parts produced. Also, it has increased the productivity and efficiency of the machinists working in the room.

"The temperature at which the room is held is not critical as long as it does not fluctuate, so 80° F. for summer and 72° F. for winter are the normal settings," Greenwald explained.

"Control of humidity is not a necessary item but this was added after the system was installed because high relative humidity caused rusting of machine and work surfaces when the cooling load was low.

"This occurred during weekend shutdown of machining operations and when the ambient wet and dry bulb temperatures approached the

saturation point. No humidification methods were provided for the heating season."

Greenwald also pointed out: "The humidistat operates a modulating three-way valve causing the condenser water leaving the refrigeration unit to pass through the reheat coil or directly to the sewer drain.

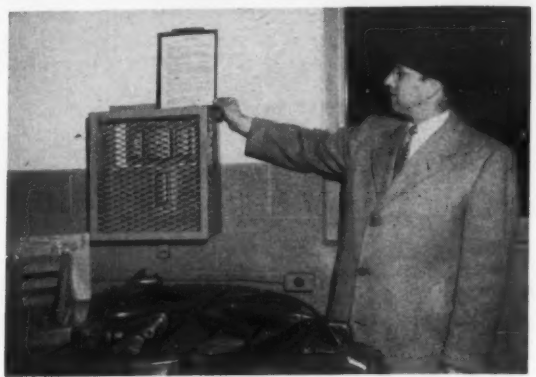
"As the valve positions to permit reheat it actuates an auxiliary switch on the valve motor shaft to open the refrigerant solenoid valve, acting in parallel with the cooling thermostat. The refrigeration unit starts under pressure control when the solenoid valve is opened."

## Grinding and Assembly Room

Another project which called for constant temperature control—plus extreme cleanliness—was that of an Ohio plant. Here, Lumm air conditioned grinding and assembly rooms used in the manufacture of extremely small high precision parts.

The air conditioning system for the large grinding room includes three Worthington compressors—two of 75-hp. capacity and one 100-hp. unit. Four 20-hp. Frigid-

(Concluded on next page)



WHEN AN INSTALLATION is completed by Lumm Corp., Robert Greenwald, head of the company's air conditioning division, leaves the customer a transparent-front plastic paper holder containing operating instructions, diagrams, warranties, etc. It's a little "extra touch" that pleases customers, helps remind them of Lumm.

Your air conditioner can't breathe through a dirty filter. Have your serviceman replace dirt-clogged filters now with FIBERGLAS DUST-STOP AIR FILTERS.

Don't let your air conditioner choke! Have your serviceman replace dirt-clogged filters now with FIBERGLAS DUST-STOP AIR FILTERS.

Is your air conditioner gasping? Have your serviceman replace dirt-clogged filters now with FIBERGLAS DUST-STOP AIR FILTERS.

Your air conditioner is only as good as its filter. Have your serviceman replace dirt-clogged filters now with FIBERGLAS DUST-STOP AIR FILTERS.

Don't ruin your air conditioner. Have your serviceman replace dirt-clogged filters now with FIBERGLAS DUST-STOP AIR FILTERS.

Get all the air conditioning you're paying for. Have your serviceman replace dirt-clogged filters now with FIBERGLAS DUST-STOP AIR FILTERS.

## We tell 'em— You sell 'em!

To build sales today, you have to build service. Ask the auto dealer, the appliance dealer... anyone who's been through it. One of the best ways to build an air conditioning service business is by stocking and pushing Fiberglas Dust-Stop\* Air Filters.

In magazine and newspaper ads like those pictured, we're telling millions of readers about the need for regular filter replacements. With Fiberglas Dust-Stop Air Filters, you have the leading original equipment filter, combining high efficiency with long life. Its fiber diameter permits depth penetration of dust, prevents surface loading. You can cash in on national advertising and a market that has doubled in size by sending for our Merchandising Plan today. Just fill in and mail the attached coupon.

**For better installations use FIBERGLAS DUCT INSULATION!**

When you install or service units, why not insulate ducts with Fiberglas Duct Insulation? Here's a quality product that increases your profits and makes customers your friends for life. Comes in a complete line that permits selection of the exact product you need... rigid or flexible; faced, sprayed or uncoated for use inside or outside ducts. Unexcelled in both thermal efficiency and sound control.

\*Fiberglas and Dust-Stop are trade marks (Reg. U.S. Pat. Off.) of Owens-Corning Fiberglas Corporation for products made of or with fibers of glass.

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Owens-Corning Fiberglas Corporation,  
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Please send me your complete Air Conditioning Merchandising Plan for Fiberglas Dust-Stop Air Filters.

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## New Tenney "TW" Unit Coolers

for EASIEST Servicing

\*"TW" means Twin fan and motor

Pats. Pending

**Remove 1 thumb screw and go to work!**

**Completely accessible—all components, fans, motors, valve connections located for unobstructed work without disturbing a single installed refrigeration, electrical, or water drain line. Removal of one thumb screw opens entire unit for service.**

**The serviceman's dream—semi-circular design for all-over air distribution. Standard twin fans and motors give extra safety; one fan and motor will maintain safe box temperature until serviced. Tenney standard non-ferrous coil, faceted fins, rustproof baked enamel finish, and accurate ratings.**

Available with filters for comfort cooling or commercial refrigeration.

Write Dept. E, for Bulletin 104-53. Do it today!

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Plants: Union, N. J. and Baltimore, Md.

Engineers and Manufacturers of Refrigeration and Environmental Equipment





## Conditioned Air Improves Production--

(Concluded from preceding page) aire compressors power the assembly room system. The systems maintain a temperature of 72° F., plus or minus 1/2°, and a relative humidity of about 45%, plus or minus 1%.

### Electronic Air Filters

#### Keep Dust at Minimum

Electronic air filters are used in the latter system because of the need to keep dust in the room at a minimum. For the same reason, women who work in this room wear nylon smocks and snoods and white kid gloves. The room has an air-lock entrance.

In Fostoria, Ohio, Lumm air conditioned a commutator test room for National Carbon Div. of Union Carbide & Carbon Corp. A 15-hp. system maintains a temperature of about 75° F. and a relative humidity of 45% in this room, which measures 12 ft. by 19 ft. 6 in., by 10 ft. high. Maximum difference between room and supply air temperature is 25° F.

### 80 to 90 Air Changes

#### Per Hour

An unusual feature of this job is the number of air changes per hour—80 to 90. Greenwald explained that this was necessary because of the high concentration of heat in a limited space. The room contains four machines with large motors, plus electronic equipment.

Maintenance of a relative humidity of around 60% in a winding room is the purpose of a Lumm installation for Glass Fibers, Inc. in Waterville, Ohio. In this room,

glass thread is wound on spools.

If air in the room were too dry, the thread would break, causing costly foul-ups. Lumm's installation averts this danger and also cuts down on the number of workers required for the winding room operation. The system includes American Blower fans and air washer and "Amco" atomizing nozzles for humidification.

Still another project handled by Lumm was the air conditioning of a periscope assembly room for Libbey-Owens-Ford Glass Co. in Toledo. Temperature and humidity is closely controlled here by means of a system powered by a 5-hp. Worthington unit and including a Bryant silica gel rotary-drum dehumidifier. Lowest possible humidity is needed here to prevent clouding of the periscope lenses.

### Operating Instructions Left In Transparent Holder

When each job is finished, Greenwald leaves the customer an 8 1/2 by 11-in. transparent-front plastic paper holder containing typed operating instructions, diagrams, warranties, etc. This case is hung near the equipment so it will be quickly available when needed.

Providing the customer with this material in a transparent case so it will always be easy to read and keep clean is a little "extra touch" that pleases customers, Greenwald believes. It not only helps the customer to properly operate and maintain his equipment, but also helps remind him of the company that made the installation.

## Kathabar Names Three To Field Posts

TOLEDO — Appointment of three new sales agents and the addition of another company representative in its New York office are announced by F. M. Johnson, sales manager of the Kathabar Air Conditioning Div. of Surface Combustion Corp. here.

Natural Gas Equipment, Inc., will represent this division in the California counties north of and including Monterey, Kings, Tulare, Inyo, and the states of Oregon and Washington. Offices are in San Francisco at 1150 Folsom.

Humidity Conditioner Corp., Philadelphia, will concentrate on the marine applications of Kathabar equipment for dry cargo conditioning and tankers. This same firm will also represent the Kathabar Div. in the Philadelphia area, contacting consulting engineers and industrial firms on the many process air drying applications of this equipment.

The George Q. McNamara Co. will represent this division in metropolitan Detroit and the surrounding counties of Macomb, Oakland, Washtenaw, and Wayne.

To increase Kathabar coverage in New England, New York, New Jersey, Delaware, Maryland, and upper Pennsylvania, Robert Harrison has been assigned as company sales and service representative to the New York office.

## 12-Acre Tobacco Plant To Be Air Conditioned

GREENSBORO, N. C.—The H. L. Coble Construction Co. here has been awarded the general construction contract for the P. Lorillard Co.'s \$13,000,000 plant which will be built at the eastern city limits on East Market St.

According to William J. Halley, president of the tobacco company, the building will be the "most modern and efficient cigarette plant and tobacco research laboratory."

"The fully integrated plant will cover almost 12 acres, with complete mechanization in handling of tobacco. It will be air conditioned, with automatic temperature and humidity controls at each stage of processing," he added.

He said the plant, first of the company's factories south of Richmond, Va., will augment production of its Old Gold and Kent brands.

## Acme Ups Efficiency 15% In Cooling Towers

JACKSON, Mich.—An average increase in efficiency of 15% over previous models has been incorporated in the new HACT series cooling towers, Acme Industries, Inc. announced recently.

Larger capacity has been accomplished without increasing the compact size of the previous models and without any advance in price, the company stated. Improvements in eliminator efficiency and in the design of fans and fan shafts figure in the change.

The HACT series towers provide a range of capacities from 20 through 70 tons.

Heavy duty, all-metal construction, with all sections hot-dipped galvanized after fabrication, makes Acme cooling towers proof against deterioration, it is claimed.

The pre-assembled, packaged units are completely piped and have motors for either indoor or outdoor service integrally mounted.

The newly designed centrifugal-type fan wheels, cadmium plated solid steel shafts, and over-size ball bearings, plus the rigidity of the die-formed structural panels make for quiet operation, the company said. Arrangement of the non-clogging low pressure-drop brass spray nozzles and the design of the baffles in the all steel Acme-Pak produce a continuous transfer of heat from the water circulated.

### Arrow Utilities Named

BROOKLYN — Arrow Utilities, air conditioning design specialist, was recently appointed a distributor for the T-O-T water tower manufactured by Therm-O-Trol of Houston, Harold Reiter, president, has announced.

The distributorship will cover all the New York area including Long Island, and Nassau and Suffolk counties.



Dura-maroon Housing and Silver Streak Wheel. Interchangeable with Viking Blowers now being installed.

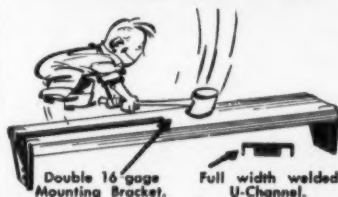
## "Easy Installation and Servicing..."

that's what dealers like about these

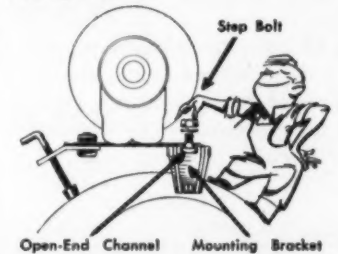
# Improved Viking BLOWERS

That's the field report of Mack MacKenzie, friendly Viking Representative of Naperville, Illinois

### Here's Proof of This Amazing Interest!



MOTOR MOUNT more than adequately supports motor insuring pulley alignment. Reduces bearing and pulley wear providing quieter, more reliable operation.



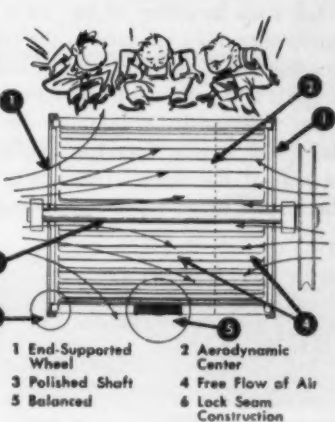
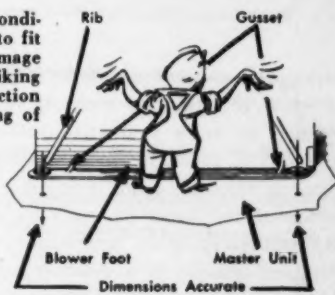
EASIER TO MOUNT MOTOR with new step bolts which slip quickly into open end U-channel and are held securely by channel sides to permit hex nuts over motor base to be tightened with one hand.



"When I install a furnace or air conditioner I expect the various parts to fit quickly into place and resist damage during our assembly operation. This new Viking Blower Assembly is the closest thing to perfection along these lines I've ever seen. No reboring of holes in the master unit with these accurate mounting holes. And the strength of the feet eliminate handling damage. I'm sure manufacturers know our problems and I hope they recognize this new Viking Blower as the solution." That's what Wes Selberg of Weichert Heating & Sheet Metal Works in Chicago, Illinois, said when he saw this new Viking Unit.

"Yes Sir, these new improvements in your Blower Wheel look to us like the last word in filling wholesaler, dealer and customer demands. Ought to produce the maximum air flow for its size and cost. It's definitely a strong wheel structurally. Together your improvements show a quieter, longer-lasting wheel unit. Adds many reasons for preference by dealers who are already partial to Viking Blower Packages and Assemblies". So reports Charley Bennett of Armstrong Heating Supply Co., in Chicago, Illinois.

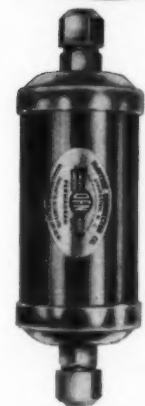
Note to Furnace & Air Conditioning Designers: A request on your company stationery to Viking at the address listed below brings quick delivery of our Blower Assembly Workbook for specifying the blower you require for your unit. Ask for "Viking Blower Assembly Workbook".



Other Viking Products: Dehumidifiers, Attic Fans, Window Fans



That's why we originally adopted this trademark



At leading wholesalers everywhere



Since 1925

Let's get the record straight on REMOVING WATER and ACIDS!

McINTIRE has been doing it for over 20 years

DRYING to low dew point  
FILTERING foreign matter  
NEUTRALIZING acids

—and not only in laboratory tests, but under ACTUAL REFRIGERATING CONDITIONS

Every DFN drier does exactly what the trademark means . . . Dries—Filters—Neutralizes. This is not a new "claim", but an essential three-way action that users of DFN Driers have enjoyed since we pioneered the first driers.

Every DFN drier charged with the new, patented PERMAGRAN desiccant provides fast, high-capacity, low dew point drying, plus efficient neutralization of acids. Both inlet and outlet are equipped with straining and filtering media.

DFN driers are made by specialists in drying—subjected to rigid laboratory and field tests—meet highest standards and perform as claimed under actual field conditions.

The McIntire Company Livingston, N. J.

DRIERS • FILTERS • STRAINERS



## Current Literature

To obtain further information on the literature listed below, please refer to key number preceding listing. Please use the "Information Center" form on "What's New" page.

### Cut-Away Book Shows How To Assemble Bally Walk-In

KEY NO. P-530

BALLY, Pa.—A cut-away type manual issued by Bally Case & Cooler Co. depicts "five easy steps" in assembling the Bally all-steel walk-in cooler.

It is being distributed by the company to dealer salesmen to serve as both a visual presentation, to be used on sales calls, and as a training aid, reports Leon Prince, sales manager.

Each page of the book is cut away, and as it is turned, adds a new section to the preceding assembly.

The process starts with the floor section, continues through two stages of the vertical wall section, and ends with the final stages of top assembly.

Besides detailing assembly instructions, the manual also shows how to expand the standard walk-in cooler beyond its original size and how to adapt it to a change in store layout. Interior fittings as well as partitions are also described.

### Publishes New Issue Of 'Humidity Engineer'

KEY NO. P-531

TOLEDO—A new issue of *The Humidity Engineer*, devoted to industrial humidity conditioning problems, has been released by Kathabar Div. of Surface Combustion Corp.

One article describes the air conditioning system used by The Ohio Boxboard Co. to maintain standardized atmospheric conditions in its boxboard preconditioning room and the firm's testing laboratory.

A second article discusses the hard to measure factors, such as worker morale, health, and efficiency, which justify industrial comfort air conditioning. The ventilation and air conditioning system installed in the O. H. Hutchings Station of Dayton Power & Light Co. is illustrated.

This issue also discusses the application of humidity conditioning to mothballing factories, drying compressed air, wind tunnel air moisture control, and making safety glass.

### Merchandising Folder Tells All About Oasis Air Drier

KEY NO. P-532

COLUMBUS, Ohio—An Oasis air drier merchandising folder for dealers has been announced by the Ebco Mfg. Co. here. The self-mailer tells all about the new design, new sales features, and new advertising and promotion program for the drier, according to the manufacturer.

### Catalog Lists Wire Cordage Types, Cord Set Components

KEY NO. P-533

DEKALB, Ill.—A new 30-page, two-color catalog of wire cordage types and cord set components has been issued recently by the Cords Limited Div., Essex Wire Corp. here.

The catalog contains 64 photographs of facilities and some typical production cord sets. A special engineering section contains 118 separate dimensional engineering drawings of Cords Ltd. plastic and molded rubber cord connectors, strain reliefs, in addition to crotches, and sockets, the manufacturer reports.

There are also simplified tables showing maximum ampere and voltage ratings for various portable cordage and wire gauges, with typical appliance and industrial cordage and types of cord sets listed.

### Alco's Refrigerant Controls Catalog Simplifies Ordering

KEY NO. P-534

ST. LOUIS—The new condensed catalog (No. 20) recently issued by Alco Valve Co. will simplify the job of ordering refrigerant controls, according to the company.

"This catalog describes all controls in Alco's complete line," it was pointed out. "Many valves not formerly cataloged are included—new models and new sizes."

"It presents refrigeration data and tables necessary for the proper selection and ordering of the controls. It also includes shipping weights."

"Engineering data will be issued in separate literature."

Alco's new description code for Thermo Valves is used in this issue. The number with the valve type indicates the capacity. Example: TCL 200 stands for a valve of 2 ton capacity. THL 5000 . . . a valve of 50 tons capacity.

### Tenney Offering Bulletin On New 'V2' Unit Coolers

KEY NO. P-535

UNION, N. J.—Tenney Engineering, Inc. here is offering a four-page, two-color bulletin covering its new "V2" unit coolers.

The coolers are designed specifically for use in such confined spaces as reach-in refrigerators, beverage coolers, and back bars.

The bulletin (No. 105-53) includes engineering drawings and photographs, describes construction features, and gives engineering details. It explains how the V-arranged coils enable two-directional air circulation and how air is circulated away from doors.

Complete dimensions are tabularized and keyed to engineering drawings. A second table gives application data and includes information on cooling capacity, air circulation, and connection requirements. A third tabulation gives prices.

### Catalog Covers Kelvinator's Electric Water Cooler Line

KEY NO. P-536

COLUMBUS, Ohio—A new and complete line of electric water coolers is pictured and described in Kelvinator's 1954 catalog, offered by Kelvinator Water Coolers here.

Additions to the line include explosion-proof, cafeteria, heavy-duty mill type, water-cooled condenser, as well as stainless steel models.

Other models in the catalog include bottle and pressure-type, some with cold compartment and ice cube trays, stainless steel and white porcelain tops, with hand dial or foot pedal control. Capacities run from 1 g.p.h. to 35 g.p.h., in AC or DC models.

Accessories such as glass fillers and remote fountains are included in the catalog.

### Drayer-Hanson Describes 'Flexazone' System

KEY NO. P-537

LOS ANGELES—Drayer-Hanson, Inc. has announced publication of a six-page brochure on a new product, "Flexazone" central plant air conditioners.

The information piece makes use of deep, dramatic color. A "strikingly-modern" design layout is employed, according to the company.

Copy points up several exclusive features claimed for the product.

"As with other central-plant air conditioners, the D-H Flexazone unit heats, cools, ventilates, circulates, filters, humidifies, and dehumidifies," the company said. "It provides independent and/or variable control to each separate zone or room of an installation."

But "much greater flexibility" is claimed for this unit—"there is a choice of 24 different unit arrangements."

Said to be exclusive, too, is D-H's damper arrangements: Zones be added to or changed after the unit has been installed. Greater selectivity is possible, it was stated, as units are manufactured for either horizontal or vertical installation.

C.f.m. capacities range from 1,800 to 24,000.

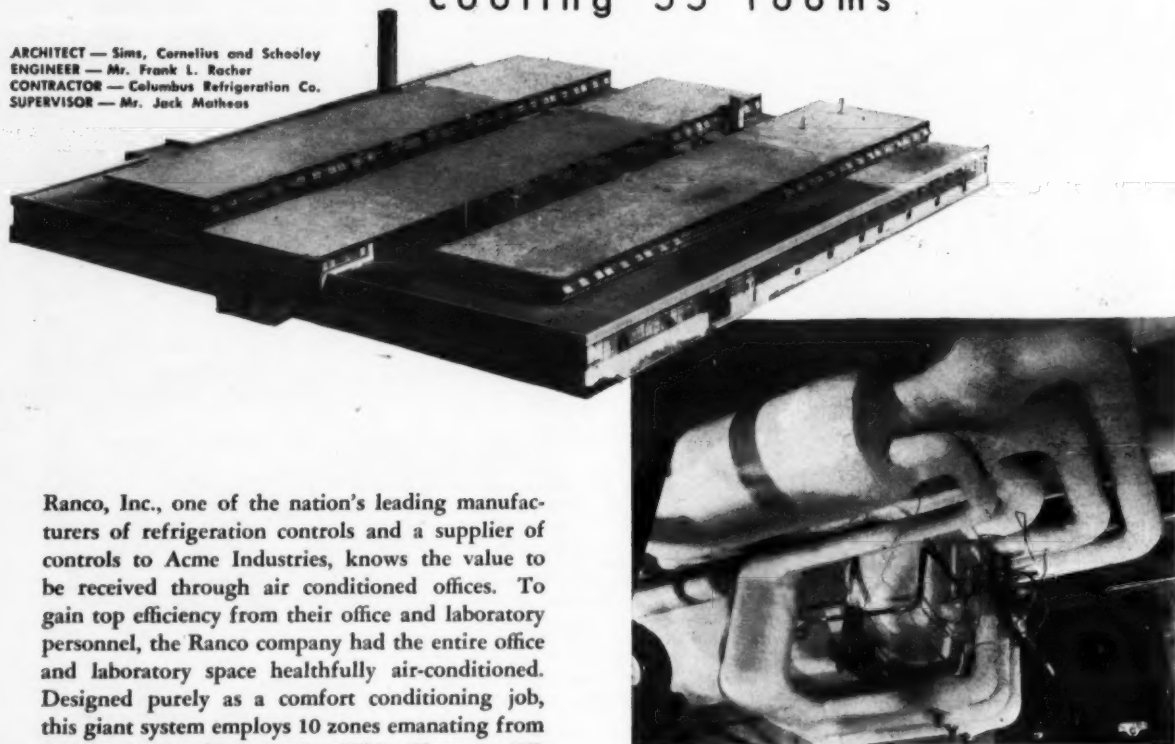
The brochure contains comprehensive data on Flexazone construction and operation. It also includes specifications (with fine-line drawings), dimension table, dimensional diagrams, and a full-page nominal selection table.

The front cover spotlights "Flexazone in Operation" with an installation photograph taken of and FZ-212 Unit (7 zones) at the Schlitz Brewing Co., Miami, Fla. The back cover is highlighted by a Flexazone installation at Sailee's Restaurant, Burbank (a 3-zoned unit).

Rounding out the brochure are numerous other installation photographs of Drayer-Hanson-manufactured equipment at work throughout the country. The brochure is free upon request.

## 1 Acme DRY-EX® provides chilled water for 10-zone system cooling 55 rooms

ARCHITECT—Sims, Cornelius and Schooley  
ENGINEER—Mr. Frank L. Reicher  
CONTRACTOR—Columbus Refrigeration Co.  
SUPERVISOR—Mr. Jack Mathews



Ranco, Inc., one of the nation's leading manufacturers of refrigeration controls and a supplier of controls to Acme Industries, knows the value to be received through air conditioned offices. To gain top efficiency from their office and laboratory personnel, the Ranco company had the entire office and laboratory space healthfully air-conditioned. Designed purely as a comfort conditioning job, this giant system employs 10 zones emanating from 3 fan units handling 56,000 CFM. Three 50 HP condensing units are used in the system. Handling this big load is one Acme 3-circuit Dry-Ex Chiller. It chills 630 gallons of water per minute from 55 to 50 degrees. In addition to this Acme unit, an Acme HX suction line Heat Exchanger is installed in each of the three refrigerant circuits, enabling the system to gain peak operating efficiency. In-

stalled in the Spring of 1951, Ranco has been completely satisfied with the operation of the system. It is one more example of the performance, efficiency, and durability to be expected from Acme air conditioning and refrigeration products.



## ACME INDUSTRIES, INC.

Mfgs. of a complete line of Air Conditioning and Refrigeration Equipment

JACKSON, MICHIGAN



Evaporative Condensers  
Cooling Towers  
Floor-type Unit Coolers



Direct Expansion  
(Dry-Ex) and Flooded  
Liquid Chillers  
Heat Exchangers,  
Oil Separators



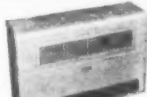
Shell and Tube, Shell  
and Coil Condensers  
Receivers, Pipe Coils



Packaged Liquid  
Chillers to 225 tons



Flow-Temp. Heat  
Pumps  
Flow-Cold Liquid  
Chillers



Remote Room  
Conditioner

Continuously serving the air conditioning and refrigeration industry since 1919

## MERIAM DRAFT GAUGES...



For System Installations. Continuously indicate condition of filters to assure balanced distribution.

In Test Cells. Determine precise adjustment of exhaust fans used to compensate for friction losses. Assure adherence to industry standards. Also eliminate possible underrating of conditioner tested.

Write Dept. C-12.

THE MERIAM INSTRUMENT CO.  
10994 MADISON AVENUE  
CLEVELAND 2, OHIO

## ACCURATE... RUGGED... COMPACT...

### Bulletin 836 PRESSURE SWITCH

Available for pressures between 30-in. vacuum and 700 lb sq in. Metal bellows operate a reliable snap action precision switch, which has no levers, hinges, or pivots. Range and differential can be easily adjusted in the field. Also, see the Bulletin 837 Temperature Control. Write for full information. Allen-Bradley Co., 1313 S. First St., Milwaukee 4, Wis.



## ALLEN-BRADLEY

QUALITY

MOTOR CONTROL



## Evis Hearing--

(Concluded from Page 1, Col. 3)  
alleged claims made for the Evis water conditioner.

Witnesses described tests made to ascertain the ability of the Evis conditioner to: 1. Aid the corrective action of soap and detergents. 2. Aid the operation of a base-type water softener. 3. Remove gaseous suspensions, tastes, and odors. 4. Keep drains and sumps free from scum. 5. Remove old scale.

Results of an electro-spectrograph analysis were described by George Uman, specialist in that field. From the results of the tests the witnesses drew the conclusions that the claims made for the Evis conditioner could not be substantiated.

James Michael, counsel for the Evis company, objected to the admission of the test data and disagreed with the conclusions of the witnesses concerning them. Under his cross examination the methods used, and the conditions surrounding each test, were brought out in great detail.

The tenor of the questioning suggested that Evis does not feel that the tests were conducted in such a manner as to permit a proper evaluation of the points in question.

The FTC expects to call a number of additional witnesses in the next two days before moving to San Francisco and Portland where further hearings will be made.



## Revco--

(Concluded from Page 1, Col. 4)  
side down and repinning hinges in slots on the opposite side of the frame, the direction of the door swing can be reversed. This reversible door feature permits quick, easy adaptation of the unit to new kitchen arrangements.

The interior of the refrigerator section measures 27½ by 27½ by 18¾ in. It has an aluminum evaporator which defrosts after each cycle on the thermocycle principle.

Freezer section interior measures 24½ by 24½ by 17¾ in. It has an aluminum evaporator, wrap-around wall construction, six ice cube trays on a "Revco" ice tray shelf which can be used as a fast-freeze shelf, and a handy roll-out drawer.

Capacity of the freezer section is said to be 210 lbs.

Principal approaches to merchandising this combination will be on the basis of space saving, putting freezer space into the kitchen, permitting decorator-approved kitchen color harmony, and inclusion under FHA financing (as a built-in appliance).

## A-P Controls--

(Concluded from Page 1, Col. 3)  
lege, Beloit, Wis., holding a bachelor of science degree.

Topp, who came to the company in 1939 to head the refrigeration development laboratory, established at that time as a separate division from A-P's oil and gas control divisions, progressed to the position of chief engineer, refrigeration. He was named director of engineering over oil, gas, and refrigeration in 1952.

Prior to association with A-P, Moerick was in the sales department of L. J. Mueller Furnace Co., Milwaukee, and the Milwaukee Journal promotion department.

Before coming to A-P, Topp instructed in mathematics and sciences in Racine County high schools, then joined the refrigeration division of Yates-American, Beloit, Wis.

## MARSH Instruments

THE SERVICEMAN LINE of Testing Gauges, Testing Thermometers, Timers, etc.

PRESSURE GAUGES and Dial Thermometers for all services.  
MARSH-ELECTRIMATIC, Water Regulating Valves, Solenoid Valves.

MARSH INSTRUMENT COMPANY  
Sales Affiliate of J. P. Marsh Corporation  
Dept. D., Skokie, Ill.

## Crosley-Bendix--

(Concluded from Page 1, Col. 4)  
Ericksen said MacDonough's new responsibilities encompass direction of appliance distribution which includes sales, merchandising, and advertising for Crosley home appliances and Bendix automatic laundry equipment.

Previously he had been director of merchandising and advertising for Crosley and Bendix appliances.

"In this newly-created position," Ericksen said, "as the chief appliance and laundry equipment sales executive, MacDonough will be able to coordinate closely the activities of the respective general sales managers for the appliances and laundry with advertising."

Prior to the consolidation of the Crosley and Bendix divisions, MacDonough was director of merchandising and advertising for Bendix, having been appointed to that post in 1952. Previous to that, he was national merchandising manager for Bendix.

MacDonough's background in sales, advertising, and merchandising is broad and varied. He joined Bendix in 1950 after two years as director of merchandising and advertising for Coolerator Co. Previous to that, he was sales manager of the Home Appliances Div. of General Mills, Inc.

Knighton, the new general sales manager, joins Crosley from his own distributing firm, Knighton-Keune of Miami.



A. M. MASIELLO



C. F. ZAUNER

## Remington--

(Concluded from Page 1, Col. 5)  
following the resignation of M. L. Judd, Remington general sales manager, who has become a manufacturer's representative for Remington.

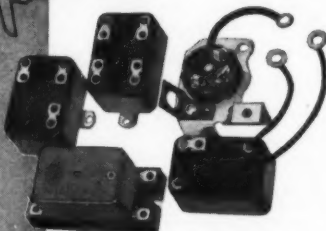
The two newly-appointed field managers are A. M. Masiello, formerly assistant to the general sales manager, and C. F. Zauner, former national service manager.

Masiello, as eastern field manager, will cover the six New England states, New York, Pennsylvania (except the Pittsburgh trading area), New Jersey, Delaware, Maryland, District of Columbia, Virginia, Tennessee, the Carolinas, Alabama, Georgia, and Florida.

Zauner, as western field manager, will be responsible for the Pittsburgh trading area, Michigan, Ohio, Kentucky, Indiana, Illinois, Minnesota, Iowa, eastern Nebraska, Missouri, Kansas, Arkansas, Oklahoma, Mississippi, Louisiana, and Texas.

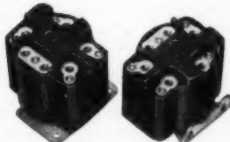
## A COMPLETE LINE— Designed to Your Requirements

### R-B-M MOTOR STARTING RELAYS AND OVERLOAD PROTECTORS



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Balanced armature—Can be mounted in any position.



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## R-B-M DIVISION ESSEX WIRE CORPORATION

Logansport, Indiana



Controls for Electronic, Refrigeration, Industrial, Appliance, Communication and Automotive Industries.

DESIGNED to be built into the kitchen is this new Revco freezer and Refrigerator combination. It is said to save space, put the freezer in the kitchen, and permit use of modern decorator color schemes. It can be financed under FHA.



There is something to talk about!

WHEN  
THE  
TUBING  
IS

WHEN TUBING is the topic of conversation, PENN is the name that is just naturally mentioned first. Everyone at PENN knocks himself out to produce the finest quality tubing possible. Talk about clean tubing, perfect annealing, and absolute dehydration! Talk about uniformity of wall thickness or any other high standards\*, when you choose PENN tubing, you've picked the favorite. Ask your Wholesaler about PENN QUALITY TUBING today—he knows it—he talks it—he sells it!

## PENN QUALITY TUBING

\* IMPORTANT: (MEETS A.S.T.M. DESIGNATION B280-53T)

COILED • PACKAGED • FITTED • ANNEALED  
STRAIGHT • FABRICATED • FLARED • DEHYDRATED

QUALITY TUBING HAS A "PENN NAME"



PENN BRASS & COPPER COMPANY

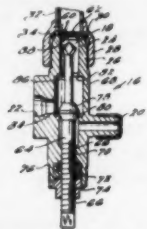
ERIE • PENNSYLVANIA • TELEPHONE 3-1164



# PATENTS

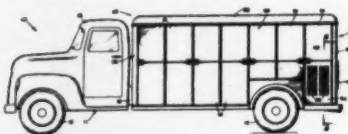
Week of February 2  
(Continued)

**2,667,760. RUPTURABLE APPARATUS FOR SEALING FLUID SYSTEM ELEMENTS.** Charles L. Curtis, Pasco, Ohio, assignor to Copeland Refrigeration Corp., Sidney, Ohio, a corporation of Michigan. Application July 29, 1949, Serial No. 107,524. 11 Claims. (Cl. 62-115.)



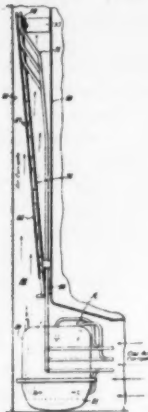
2. In combination a pair of refrigerating system elements, each of said elements having an opening through a wall thereof, said openings being adapted to be arranged in juxtaposition to permit flow of refrigerant between said elements, attaching means clampingly securing said walls in contacting engagement with each other, each said element being provided with a frangible seal located adjacent its said wall and individually closing its respective opening, said seals being adjacent outermost portions of the engaging portions of said elements whereby when said walls are in engagement the space between said seals is substantially eliminated, and rupturing means carried within one of said elements on the side of said one element seal away from the other of said seals for rupturing both said seals to initiate fluid flow between said elements.

**2,667,761. HIGHWAY TRUCK WITH SELF-CONTAINED REFRIGERATION SYSTEMS.** Lawrence T. Sellstrom, Los Angeles, Calif., assignor to Knudsen Creamery Co. of California, Los Angeles, Calif., a corporation of California. Application Nov. 3, 1951, Serial No. 254,574. 6 Claims. (Cl. 62-117.)



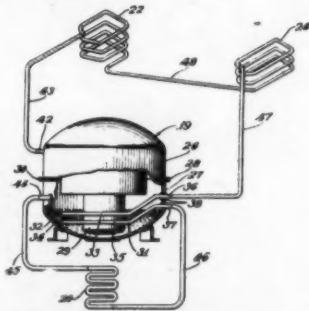
1. In a refrigerated body for use on a highway truck chassis having a frame and driver's cabin, the combination of: a cold box having thick insulated walls and adapted to rest on and be secured to the frame of said chassis behind the driver's cabin thereof, said cold box being divided by a series of transversely disposed cold plates into a succession of relatively narrow compartments, the side walls of said body comprising two like series of full height narrow doors hingedly mounted on vertical axes along opposite sides of said box, said doors being arranged in opposed pairs, each such pair of opposed doors giving access to opposite ends of one of said compartments, there being an angled recess formed transversely in the rearmost and bottom insulated walls of said box at the lower rear corner of and across the full width of the box; and a self-contained refrigerant compressing unit housed within the space formed by said recess, said unit supplying compressed refrigerant to said cold plates to substantially uniformly refrigerate said compartments.

**2,667,762. CONDENSER FOR REFRIGERATING SYSTEMS.** James R. Hornaday, North Muskegon, Mich., assignor to Borg-Warner Corp., Chicago, a corporation of Illinois. Application April 26, 1951, Serial No. 223,064. 2 Claims. (Cl. 62-117.4.)



1. In a refrigerating system, having an evaporator and casing means forming a chamber within which a compressor is disposed, a refrigerant superheat removing coil, an outlet from said coil discharging the partially cooled refrigerant into the chamber, a condenser, an outlet from the chamber through which the compressed refrigerant is discharged into said condenser, fluid flow connections between said condenser, evaporator, and compressor, said condenser comprising a serpentine coil adapted to contain refrigerant, means mounting the loops of said serpentine coil and superheat removing coil in substantially a single plane disposed at a small acute angle to the vertical, and the means providing additional surface area for contact with air currents comprising a plurality of straight rod-like elements, means mounting some of said elements in contact with first surfaces of said serpentine and superheat coils each of which first surfaces face in the same direction, and means mounting the remainder of said elements in contact with surfaces of said coils opposite to said first surfaces and in staggered relationship to said elements in contact with said first surfaces of said coils whereby air currents passing upwardly and through said condenser by convection define a foil section to wipe the surfaces of said coils and said rod-like elements.

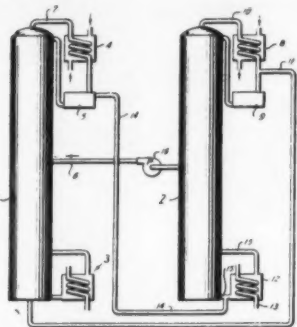
**2,667,763. COOLING MEANS FOR MOTOR COMPRESSOR UNITS.** Charles D. Harris, Robert L. Eichhorn, John R. Prosek, and Gerald P. McMama, Evansville, Ind., assignors to International Harvester Co., a corporation of New Jersey. Application Sept. 29, 1950, Serial No. 187,546. 6 Claims. (Cl. 62-117.7.)



2. In a refrigeration system, a casing which encloses a motor-compressor unit, an oil for lubricating and cooling said motor-compressor unit, an oil reservoir in the bottom portion of said casing containing said oil, said compressor extending into said oil reservoir, a cooling coil posi-

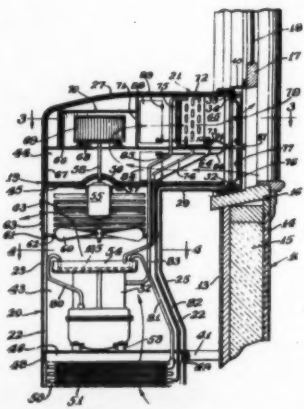
tioned in said oil reservoir having circular shaped turns which extend around said compressor and end portions which extend through said casing and are secured thereto, said turns spaced between said compressor and said casing, a heat exchange unit connected in said refrigeration system and to said coil, and a refrigerant in said system which is cooled by said heat exchange unit and then passed through said coil where it absorbs heat from said oil from the motor-compressor unit.

**2,667,764. REFRIGERATION METHOD, SYSTEM, and APPARATUS.** Nelson C. Turner, Houston, Texas, assignor to Hudson Engineering Corp., Houston, Texas, a corporation of Texas. Application Jan. 18, 1950, Serial No. 139,231. 5 Claims. (Cl. 62-119.)



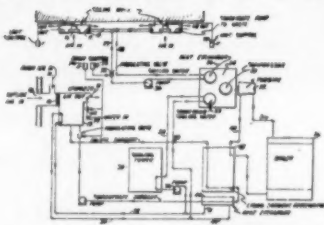
1. The method of producing refrigeration utilizing two volatile and completely miscible liquids which may be readily separated by fractionation and having materially different boiling points at the pressures existent within the system, comprising the steps of evaporating the lower boiling liquid in an evaporation zone to produce refrigeration, passing the resulting gas in countercurrent contact with the higher boiling liquid in a gas liquid contacting zone under controlled ratios and withdrawing a mixture of said liquids from an intermediate point in said contacting zone such that all the gas released from the contacting zone is substantially the higher boiling component, and all the liquid bottoms product from the contacting zone is substantially the lower boiling component, passing the liquid bottoms product into the evaporation zone and countercurrently contacting the resultant gas with the liquid in said contacting zone, condensing the contacting zone gas product and passing the condensate into the contact zone as a liquid.

**2,667,765. WINDOW MOUNTED AIR CONDITIONING UNIT.** Charles D. Harris and Joseph A. Galazzi, Evansville, Ind., assignors to International Harvester Co., a corporation of New Jersey. Application Jan. 22, 1952, Serial No. 267,542. 8 Claims. (Cl. 62-140.)



1. In a unit for conditioning room air, the combination of a cabinet secured to the outer surface of a building wall adjacent a window which opens into a room; a partition for dividing the cabinet into a low side compartment and a high side compartment; said cabinet being provided with a projection which extends into said window and terminates adjacent the outer surface of a window pane; said projection being provided with an opening which connects said low side compartment to said room; a wall member for dividing said low side compartment and projection into an air inlet passageway and an air outlet passageway; fan means for pulling room air through said opening, circulating the air through said inlet passageway and said outlet passageway, and then returning it to said room through said opening; an evaporator disposed across said outlet passageway whereby the air circulating there-through will be cooled; a first opening provided in said cabinet which connects said inlet passageway to outside air; valve means for opening and closing said first opening; a second opening provided in said cabinet between said evaporator and said inlet passageway which connects said inlet passageway to outside air; and valve means for opening and closing said second opening.

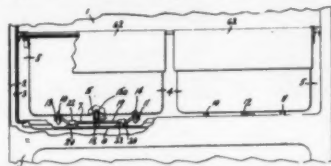
**2,667,766. METHOD OF BALANCING STEAM CONSUMPTION IN AIR CONDITIONING.** William Warren Cummings, Bradford, Vt. Application Oct. 29, 1948, Serial No. 57,325. 9 Claims. (Cl. 62-176.)



1. The method of air conditioning which combines the cooling and humidification of air in a balanced steam operated dual system utilizing a steam turbine driven refrigerated compressor supplying refrigerant to a cooling element wherein water is cooled, cooling the air by bringing it

into heat exchange with the cooled water, removing the moisture from the air by means of chemical sorbents, reactivating the chemical sorbents by utilizing the exhaust steam from the compressor unit and automatically spraying moisture into the dehumidified air until the desired relative humidity has been reached, to provide an evaporative cooling action and to further reduce the sensible heat load on the refrigerating compressor.

**2,668,082. MOUNTING ARRANGEMENTS FOR STORAGE RECEPTACLES.** Richard J. Carbury, Erie, Pa., assignor to General Electric Co., a corporation of New York. Application Aug. 31, 1950, Serial No. 182,489. 18 Claims. (Cl. 312-270.)



10. A refrigerator or the like including a liner defining a food storage compartment, a food storage receptacle within said compartment, a cover fixedly mounted within said compartment in spaced relationship with the top of said receptacle, means including a rack disposed at the bottom of said liner for facilitating movement of said receptacle, said rack

including a T-shaped frame having a first leg extending transversely of said receptacle at the forward portion of said compartment and a second leg extending rearwardly from the mid-point of said first leg, said rack including two members mounted at the two extremities of said first leg and a third member mounted at the rear extremity of said second leg for slidably supporting said receptacle, said receptacle having three parallel grooves formed therein, each of said members being received within a corresponding one of said grooves whereby said members cooperate with said grooves to guide said receptacle during sliding movement, said second leg of said frame being received within one of said grooves for guiding said receptacle, two elements secured to said first leg near opposite extremities thereof and extending perpendicularly to said first leg, two supporting elements mounted on the bottom of said liner, said first-named elements and said supporting elements having engaging surfaces curved in a plane extending perpendicularly to said first leg, each of said curved surfaces of said first-named elements including an elongated slot extending perpendicularly to said first leg whereby either of said elements may be moved for varying the height of its corresponding end of said first leg to adjust said receptacle relative to said cover, and means for locking said first-named elements in adjusted position.

(To Be Continued)

## CLASSIFIED ADVERTISING

RATES for "Positions Wanted" \$7.50 per insertion. Limit 50 words. 15¢ per word over 50.

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ADVERTISEMENTS set in usual classified style. Box addresses count as five words, other addresses by actual word count. Please send payment with order.

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**AIR CONDITIONING** sales engineer. Leading national manufacturer of heating and air conditioning equipment needs a sales engineer to work with the Sales Manager, Air Conditioning Department. Applicant must meet following requirements: 1. Engineering degree or equivalent. 2. Have prior engineering and sales experience with air conditioning equipment. 3. Able to handle wholesaler and dealer meetings. 4. Free to travel. Excellent opportunity for right man in progressive company. Man selected will supervise air conditioning sales in territory covering several states and will work with factory field representatives in those areas. Salary open. Give detailed summary of experience in first letter. All replies confidential. Write BOX 4564. Air Conditioning & Refrigeration News.

**AIR CONDITIONING & refrigeration engineer**—Must be capable of doing application, estimating & sales engineering. Expanding organization. Excellent opportunity. Address BOX 4560. Air Conditioning & Refrigeration News.

**ATTRACTIVE OPENING:** with the Webber Manufacturing Company for an engineer, 25 to 45 years of age, with experience in the designing of industrial environmental equipment, altitude chambers, humidity cabinets, and low temperature systems to -180° F. Excellent opportunity with rapidly growing concern for man with technical and practical background. Replies confidential. Write THE WEBBER MANUFACTURING COMPANY, INC., 2740 Madison Avenue, Indianapolis, Indiana, Attention: Mr. W. E. Tranbarger.

**FIELD SERVICE** engineer, Seattle or vicinity, to cover Washington, Oregon, Montana, and Provinces of Canada immediately north of those States. A real opportunity to prove your ability in leadership and enthusiasm for accomplishing your objectives. We are one of the larger commercial and food store refrigeration equipment manufacturers. You must be in a position to travel, have over five years' commercial refrigeration experience, have knowledge of electricity, refrigerants and some application engineering. Write detailed particulars, giving background and experience. Enclose small professional photo. Salary and expenses. BOX 4552. Air Conditioning & Refrigeration News.

**JOBBERS** to handle Kay Tower Blocks, a new scale and water softener for air conditioning towers. Terrific selling item.

Big money maker for you. For further information write to REFRIGERATION EQUIPMENT CO., 2400 Grand Ave., Kansas City, Mo. or George Klivo, Owner, KAY CHEMICAL & FILTER CLEANING CO., 2227 E. 77th St. Terrace, Kansas City 5, Mo.

**PIONEER MANUFACTURER** of refrigeration equipment has openings in several territories for sales representatives on a commission basis. Equipment manufactured includes a complete line of can milk coolers as well as bulk milk coolers for use on dairy farms. Representatives may carry allied but non-conflicting lines of farm equipment. Write, stating age, experience, territory, present lines, character references. Inquiries kept confidential. Address BOX 4565. Air Conditioning & Refrigeration News.

**SALES ENGINEER** for large supplier of heat transfer equipment to the household refrigeration and home freezer market. Organization is a multi-plant firm with other products. Prefer man with refrigeration or air conditioning experience. Earnings commensurate with ability and experience. Home office location Detroit, Michigan, however, re-location in Detroit might not be necessary. Convenient interviews can be arranged. Include complete resume of education and experience. BOX 4563. Air Conditioning & Refrigeration News.

**SALES MANAGER**—Refrigeration air conditioning products for manufacturer automatic controls. Location, California. Please give us background, age and salary requirements. BOX 4558. Air Conditioning & Refrigeration News.

### EQUIPMENT FOR SALE

**ATTENTION SERVICEMEN:** Send for our refrigeration parts and supplies catalog. Save up to 50% on many items. Relays, V belts, T.X. valves, fittings, controls, driers. New—guaranteed merchandise. WALTER W. STARR REFRIGERATION, 2833 Lincoln Avenue, Chicago 13, Illinois.

**MAKE MONEY** with the most compact condensate water disposal unit for air conditioners, ice bins, drinking fountains. Only 9" high, 11" wide and 4 1/4" thick; complete with check valve, float switch and tank. Will pump to a 12 foot head. List \$50.00. Order from your jobber or write to KESCO PRODUCTS CORP., 134-34 230 St., Springfield Gardens 13, N. Y.

1/4 AND 1 H.P. nationally-known compressors at sacrifice prices (manufacturer prohibits us from using name). All twin-cylinder bodies with flywheel and service valves—1/4 H.P. only \$42.00; 1 H.P. \$47.00. (10% discount in lots of 6). Model SA6AL1 and SA6AM1. 1/4 H.P. fan-cooled hermetic units. \$34.00; model SA4AL1—1/4 H.P., \$37.00. All equipment new and fully guaranteed. MANN REFRIGERATION SUPPLY CO., 440 Lafayette Street, New York City, or phone GRamercy 3-8000.

## 1954 HOME FREEZER SPECIFICATIONS

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AIR CONDITIONING & REFRIGERATION NEWS

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# Government Contracts

## PROCUREMENT INFORMATION

The following is a list of proposed procurement issued by the various indicated U. S. Government procurement offices. Prospective bidders may obtain complete bid sets by a request to the purchasing office under which the purchase is listed in this Synopsis. Be sure to identify completely the bid invitation you wish by including in your request the item description, the invitation number or reference number and the opening date.

It is not necessary to refer solely to the issuing office for additional data on a bid invitation issued by any of the following U. S. Army Ordnance Offices: Ordnance Tank Automotive Center; Detroit Arsenal; Frankford Arsenal; Picatinny Arsenal; Raritan Arsenal; Ordnance Ammunition Center, Joliet, Ill.; Rock Island Arsenal; Springfield Armory; Watertown Arsenal; and Watervliet Arsenal. Complete information on any purchase listed by any of those offices alone can be obtained from the Ordnance District Office nearest you. Its address is on file in your nearest Department of Commerce Field Office. Do not ask an Ordnance District Office for information on a purchase unless it is listed by one of the above-named offices. Ordnance District Offices do not have information on any other purchases.

Invitations for bids numbers will be followed by the letter "B." Requests for proposals or quotations will be indicated in this column by the letter "Q," or, if numbered, the number will be followed by the letter "Q."

## DEPARTMENT OF DEFENSE

Description	Quantity	Invitation No.	Opening Date
Office in Charge of Construction, Fifth Naval District, Norfolk, Virginia			
Conversion of heat systems	Job	42738	18 May 54
NMD Yorktown, Va. Deposit of \$10.00 required for plans and specs.			
Foreign Trade Opportunities Branch, Foreign Operations Administration, Washington, D. C.			
Philippine Council for U. S. Aid, Terminal Bldg., Aduana St., Manila, P. I.			
Air conditioner for insectary.	1	No. 152	21 May 54

## Worthington Appoints McCuaig as Manager of Application Engineering

HARRISON, N. J.—M. M. Lawler, Worthington Corp. vice president, air conditioning and refrigeration, recently announced the appointment of Donald H. McCuaig as manager of application engineering for the Air Conditioning and Refrigeration Div.

McCuaig joined Worthington in 1944 as application engineer of the division at Holyoke moving up to position of manager, central station equipment section in 1952 which post he held until his present appointment.

McCuaig has acquired a wide experience in the engineering field since his graduation from the University of Alabama in 1927 with a B.S. degree in industrial management. McCuaig served as an engineer with the Alabama Power Co. from 1927 to 1929. Then for eight years he was a member of the University of Alabama faculty, holding the post of associate professor of mechanical engineering and obtaining a masters degree in mechanical engineering.

For one year, McCuaig served as engineer with the Frick Co., Inc., Waynesboro, Pa., returning to the university as professor of mechanical engineering in 1938, where he remained until 1942.

## S. Carolina Firm Formed

PICKENS, S. C.—South Carolina Air Conditioning Corp. has been incorporated with capital stock of \$10,000 to buy and sell air conditioning units. W. Bird Lewis is president.

## GENERAL SERVICES ADMINISTRATION

Description	Quantity	Reference No.	App. Bid Date
General Services Administration, Business Service Center, Region 3, 7th & D Sts., S.W., Washington 25, D. C.			
Air conditioners	3 ea.	4H-44645-R	28 May 54
Cooling towers	2 ea.	4H-44645-R	28 May 54
Air conditioning, Post Office (Old), 12th & Pennsylvania Avenue, N.W., Washington, D. C.	Job	(GS-R3-B-3941)	28 May 54

## U. S. DEPARTMENT OF STATE

Division of Central Services, Department of State, Washington, D. C.			
Fans, electric, desk, oscillating, 220 volt, 50 cycle.	24 ea.	CS-54-39	20 May 54

## CONTRACTS AWARDED THROUGH MAY 10

Picatinny Arsenal, Dover, New Jersey			
Item A—Test Chamber for temperature altitude.—1 ea.; Item B—Chamber conditioning with necessary refrigeration. (N-4506) —1 ea., \$67,980.—Bowser Technical Refrigeration, Bowser, Inc., Terryville, Conn.			
Chicago Quartermaster Depot, U. S. Army, 1819 W. Pershing Rd., Chicago 9, Illinois			
Refrigerator, Mechanically cooled, 12-cu. ft. cap. 54-198B.—294 ea., \$50,641.—Deepfreeze Appliance Div., Motor Products Corp., 2301 Davis St., North Chicago, Ill.			
Aviation Supply Office, 700 Robbins Ave., Philadelphia 11, Pa.			
Maintenance Parts used on Refrigeration Unit & Turbine Assy, 383/2110-1353/50 383/2110-1070/51.—Various, \$66,805.—Airesearch Mfg. Co., Div. of the Garrett Corp., 9851-9951 Sepulveda Blvd., Los Angeles 45, Calif.			
Headquarters, Wilkins Air Force Depot, Shelby, Ohio			
ITEM 1—Air Conditioner, Trailer, Mounted, Freon Cycle, Gasoline Engine Driven, Type MA-1. ITEM 2—Spare parts for item 1. ITEM 3—Maintenance data. ITEM 4—Engineering data.—179 ea., \$917,883.—Keco Industries, Inc., 2209 Union Central Bldg., Cincinnati 25, Ohio.			



PART OF CROWD which attended the open house at Tenney's new plant in Union, N. J.

## Open House Marks Opening of New Tenney Plant for Making Environmental Chambers

UNION, N. J.—Tenney Engineering, Inc., recently formally opened its new plant at 1090 Springfield Rd. here by holding open house for more than 1,000 customers, suppliers, and friends.

Among the guests were executives of such organizations as the Radio Corp. of America, General Electric Co., E. I. DuPont de Nemours & Co., Minneapolis-Honeywell Regulator Co., Fidelity Union Trust Co., Revere Copper & Brass, Inc., Aluminum Corp. of America, Westinghouse Electric Corp., Bendix Aviation Corp., Sperry-Gyroscopic Co., and the Signal Corps Engineering Labs.

Guests attended from many distant parts of the United States, including the West Coast. Major features of the open house were a Beefsteak Dinner and dancing accompanied by a "live" orchestra. The opening commemorates the consolidation and enlargement of two former Newark plants into one modern single-story plant. The new plant will be devoted exclusively to the manufacture of environmental chambers used to

simulate climatic conditions—temperature, humidity, altitude, etc.

Tenney's Baltimore plant, which manufactures "low side" refrigeration equipment—coils, unit coolers, ice makers, expansion valves, etc.—will not be affected by the move.

The new plant is located on a 7-acre site to allow for future expansion. In discussing the plant opening, Monroe Seligman, president of Tenney, points out: "The need for environmental equipment is expanding, not only for testing parts to be used by the military but also for testing many consumer items."

"In addition to being used in testing operations, environmental equipment is used in manufacturing operations. For example, rubber parts are tumbled at low temperatures to remove edges formed at seams during manufacturing. Metal parts to be joined by shrink-fitting are fitted easily and quickly by freezing the male part and causing it to contract to the point where it easily fits into the female part."

## Idaho Falls Firm Adds Air Conditioning Shop

IDAHO FALLS, Idaho—Freeman Hansen and Elmer Holmgren, owners and operators of the First Street Plumbing and Heating Co. here, have announced the addition of a warm air heating, air conditioning, and sheet metal shop.

The owners of the firm said that the new air conditioning department will be under the management of Kenneth Dean.

## Servel Appoints B. J. Lee Air Cooling Distributor

EVANSVILLE, Ind.—B. J. Lee Co. of Memphis has been appointed Servel air conditioning distributor for western Tennessee, northern Mississippi, northeastern Arkansas, and three counties in southeastern Missouri, it was announced recently by H. R. Nielsen, manager of the air conditioning division of Servel, Inc.

The Memphis company is owned and operated by Boyd J. Lee. It was organized in 1933, and for the past 21 years has been engaged in the plumbing, heating, and air conditioning contracting business. Some of its air conditioning contracts have amounted to as much as \$200,000, it was reported.

Troy C. Bearden is chief engineer of the company, and Robert E. Turner is sales manager.

## Worell, Fleming Added To Bohn Sales Force

DETROIT—Two new appointments to Bohn Aluminum & Brass Corp.'s sales organization have been announced by T. W. Kuhn, vice president in charge of sales.

Eugene Worell and James R. Fleming have been added to the force, Kuhn stated.

Worell, who is a graduate of the University of Minnesota, has been a refrigeration engineer for Manitowoc Co., Inc., Manitowoc, Wis. He will operate out of the Bohn St. Louis office.

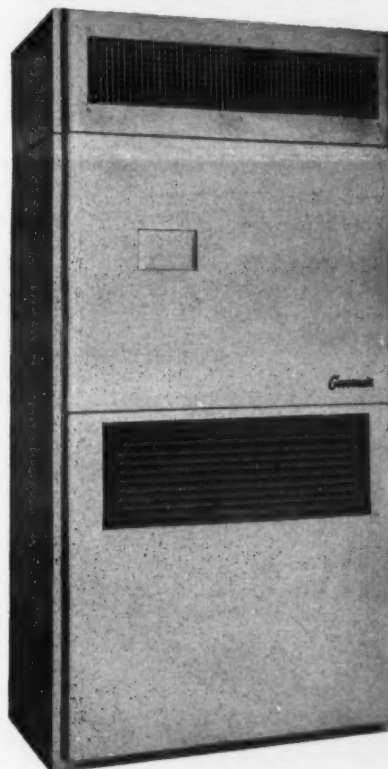
Fleming is a business administration graduate of the University of Michigan. He has been midwest district sales manager of Servel, Inc., and assistant sales manager of Betz Corp., Hammond, Ind. He will headquarter at the Dayton office of Bohn.

## Shreveport Office Bldg. Will Be Air Conditioned

SHREVEPORT, La.—According to N. O. Thomas, Jr., local developer, plans are being completed for the erection of a 20-story air conditioned office building at the corner of Travis and Edwards Sts.

Henry C. Beck Co., of Dallas and Atlanta, will be the builder as well as the owner of the new structure. Thomas said the \$5,000,000 building will rise on the site of the old YWCA.

## An "Upright" Air Conditioner!



Governair Type SC Conditioner

Yes, this is an upright Governair self-contained conditioner—but that's not the reason for the halo.

The halo is there because this air conditioner behaves itself! Built to perform true air conditioning quietly and efficiently . . . it does just that! Flexibility, compact design, easy installation, dependability and economy are among its many virtues.

Available in capacities from 3 to 15 tons, the Governair Type SC Conditioner is the answer to your air conditioning needs in commerce, institutions, factories and homes. Choose Governair . . . originators\* of completely packaged air conditioners!



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## how to make hot sales prospects out of cold customers...



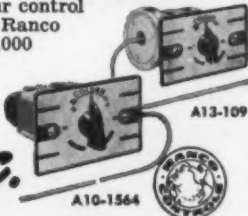
You'll melt sales resistance in a hurry with Ranco's new window air conditioner controls . . . just the ticket for modernizing old-fashioned window air conditioners not equipped with controls.

Offices and homes both offer you tremendous sales possibilities. These new controls prevent over-cooling . . . hold down humidity . . . maintain a "just right" indoor climate day and night. Get your share of this extra modernization business with Ranco's new A13-109 (3" differential), or A10-1564 (5" differential) control. Remember—whatever your control problem—it pays to see your Ranco wholesaler first. He has over 4,000 replacements—far more than available from any other source!

**Ranco Inc.**

COLUMBUS 1, OHIO

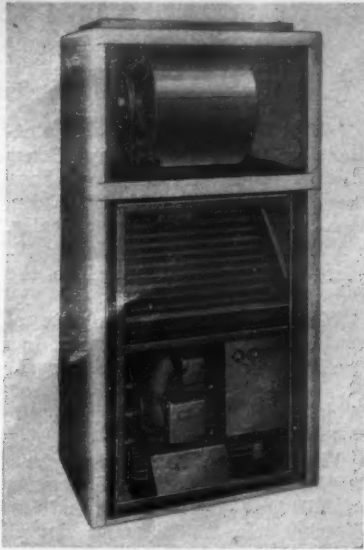
WORLD'S LARGEST MANUFACTURER OF REFRIGERATION CONTROLS



A13-109

A10-1564





Furnace unit with blower.

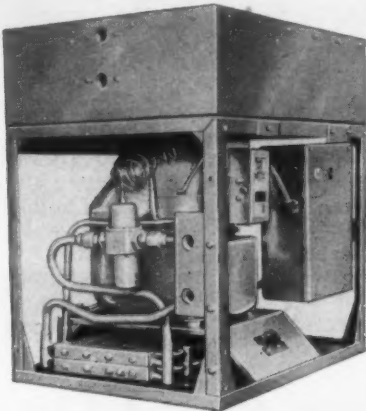
## Airtron --

(Concluded from Page 1, Col. 5) water chillers, and a horizontal model water-cooled air conditioner for use in attics, crawl spaces, or counterflow furnaces, Tyler said.

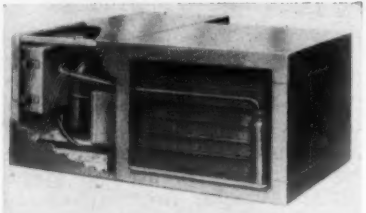
In June, the company expects to add a 5-hp. water-cooled air conditioner and 2 and 3-hp. air-cooled units, he said. The company also makes fin tube coils, forced convectors, unit coolers, air-cooled condensers, and baseboard radiation units.

Tyler said the 2 and 3-hp. air conditioners are both housed in the same size cabinet. Complete flexibility is offered as the unit can be sold with or without blower unit or grille and plenum chamber. It can be used as a free standing unit for commercial applications or for use with forced warm air heating systems for residential applications.

As a free standing unit complete with blower and grilles and plenum chamber, the unit measures 75½ in. high, 29½ in. wide, and 21¼ in. deep. With grille and plenum chamber removed for connection with present air duct system but by-passing the furnace, it stands 59½ in. high. With blower also removed, for use with furnace



2 or 3-hp. water chiller system.



Model H horizontally assembled components.

blower, the basic unit stands 40½ in. high.

The cabinet has all metal parts protected against moisture by use of a phosphatizing zinc chromate primer and gray baked enamel finish. The complete system is hermetically sealed. The Tecumseh compressor using "Freon-22" refrigerant is protected by a five-year warranty. It is available for either single or three-phase.

The Betz 3-row cooling coil is made of seamless copper tubing and aluminum fins. All connections are copper welded and the tubes hydraulically expanded. Large face area—1.86 sq. ft. on the 2-hp. model and 2.69 sq. ft. on the 3-hp. model—is provided for dehumidification.

With 80° F. d.b. air entering the evaporator and water entering the condenser at 75° F. and leaving at 95° F., the 2-hp. model is rated at 24,088 B.t.u./hr. with air over the evaporator at 800 c.f.m. The 3-hp. model is rated at 36,040 B.t.u./hr. with air over the evaporator at 1,200 c.f.m.

The condenser is of the cleanable type made by Halstead & Mitchell.

Blower of the 2-hp. Airtron is furnished with a ¼-hp. motor and has a maximum rating of 800 c.f.m. The 3-hp. Airtron has a blower motor of ½-hp. size and a maximum rating of 1,200 c.f.m. Both are furnished with adjustable pulleys.

The grille and plenum chamber has a 192-sq. in. discharge area.

The model H horizontal unit measures 41¼ in. wide, 28½ in. deep, and 19½ in. high.

The 2 and 3-hp. water chiller

systems are designed for forced water combination heating and cooling installations. They measure 23¼ in. wide, 17¼ in. deep, and 26 in. high.

## Copeland, Frigidaire --

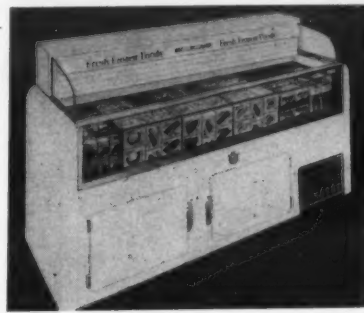
(Concluded from Page 1, Col. 2) sealed units, which are being produced in its own plant. The open-type units are being made available for use where the Frigidaire unit does not lend itself to the application, such as odd-cycle and d.c. applications.

Air-cooled, water-cooled, or combination air and water-cooled open-type units will be offered in sizes from ½-hp. through 5 hp. Special truck units of the open type will also be made available.

The units carry name plates stating that they are made for Frigidaire by Copeland.

Units supplied the Frigidaire outlets will be shipped directly from the Copeland plant. All dealings pertaining to the units, including servicing, will be handled between Frigidaire distributing points and the Copeland factory direct.

Frigidaire believes that with its own "XD Meter-Miser" units for the normal applications, and the Copeland-built belt-driven open-type compressors for d.c. and odd-cycle applications, it is providing its distributors and dealers with compressors for any type of application their customers may require.



Model FGF-224.



FGF-164D.

## Schaefer Frozen Food Cabinet Line --

(Concluded from Page 1, Col. 2) glass front, and holds 510 packages. List is \$893.30 with low type, lighted superstructure.

The model FGF-144 is an open top, glass front type of 14.4-cu. ft. capacity, holding 700 food packages.

This model is automatically self-defrosting, and lists at \$1,253 complete with superstructure.

Model FGF-164, 16 cu. ft., has open top and glass front, and holds 460 packages. Equipped with superstructure, it lists at \$1,020. Model FGF-164D is the same as the FGF-164 except that it is a double-duty model with a storage compartment below the display section that holds six cases. It is listed at \$1,100.

The largest model, FGF-224D, 22 cu. ft., holds 660 packages in the self-service display section with a large storage compartment beneath

that will accommodate 10 cases. List price is \$1,453.

There are two other models of the "Clearview" sliding glass top type. The model FFCV-141 has 14.1 cu. ft. of capacity, and lists at \$730.74. The model FFCV-220 has 20-cu. ft. capacity, and sells for \$880. The Clearview models are sold without superstructure, although a mirror type superstructure is available at slight additional cost.

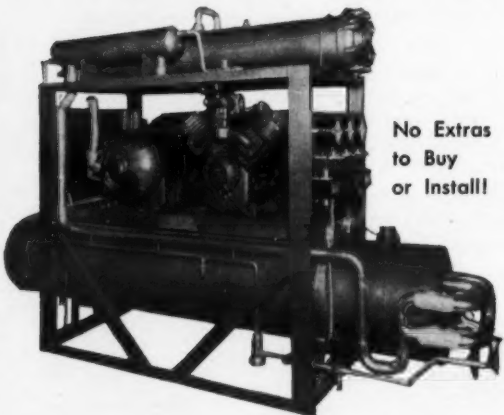
## It's Precision Chemical Pump

SOMERVILLE, Mass. — Precision Chemical Pump Corp. is the new name of the former Precision Machine Co. here, the firm has announced. The new corporation will continue production of the Precision chemical pumps and slurry pumps at the same address, 8 Walnut St.

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## SCHNACKE Thermatrol WATER CHILLERS



No Extras to Buy or Install!

—completely packaged line . . . 10 through 60 tons!

## Eliminate Costly Field Assembly!

All components in one low-cost single unit—motor, starter, full Freon charge, Thermatrol capacity regulator—everything! Designed for standard conditions: 40° suction, 55° water on, 45° water off. Simple hookup and balancing, 10-20-30-40-50-60-ton capacities standard. Ideal for multi-zone construction and year around systems. One order does the job! Write for engineering data.

1101 North Governor St.

**SCHNACKE, INC.**

Evansville Indiana

## REDWOODS LIVE 1,000 YEARS

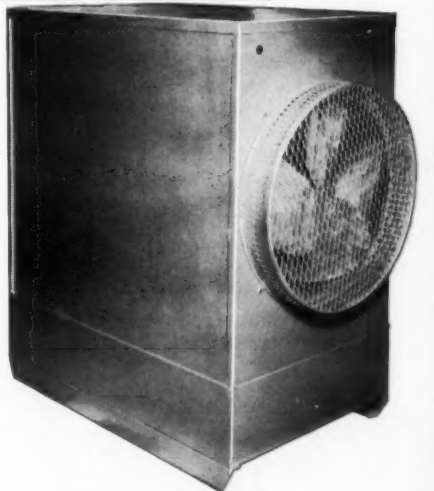
(and more)

## ...and BUSH Uses All-Heart Redwood

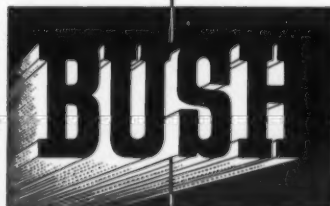
An outstanding example of longevity is the "General Sherman" tree, considered the oldest living object in the world. It was over 2500 years old when America was discovered. Heartwood of these forest giants, which grows in the area washed by Pacific fogs, is strong, durable, even-grained.

The wetted deck surface of BUSH Propeller-Fan cooling towers is made from all-heart Redwood fill . . . nail-less . . . to assure long life and trouble-free operation. This hard, durable wood needs no artificial treatment to resist fungus deterioration.

- Available in a capacity range from 2 to 15 tons for both residential and commercial air conditioning applications.
- Panels are of galvaneal, specially coated for all-weather protection and continued attractive appearance. Panels are first zinc chromate prime coated inside and out . . . then rubber coated inside and coated outside with Vinyl-base paint of high chlorinated rubber content.
- BUSH Propeller-Fan cooling towers are attractive in appearance . . . have clean-lined contours . . . no bulky projections.
- All motors are totally enclosed and have built-in overload protection. Standard motors are 110 volts, single phase, 60 cycle.
- Motors, fans and drives are of sufficient capacity to handle average ductwork for indoor installation if desired.
- Distribution pan, top and fan guard are all easily removable for quick access to all internal parts.



Write TODAY for free descriptive bulletin on BUSH Propeller-Fan Cooling Towers.



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West Hartford · 10 · Connecticut